PETROLEUM STORAGE TANK RELEASE TRUST FUND

SITE REMEDIATION PLAN

REQUEST FOR PROPOSAL

Kansas Department of Health and Environment

Bureau of Environmental Remediation

Storage Tank Section

K A N S A S

RODERICK L. BREMBY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

DEPARTMENT OF HEALTH AND ENVIRONMENT

August 24, 2005

Dear Prospective Bidder:

Significant revisions have been made to the enclosed Site Remediation Plan Request for Proposal (SRP RFP); therefore we strongly recommend you thoroughly read the document prior to bidding. Vendors are responsible for reading and fully understanding all requirements in this document. If you are unable or unwilling to fulfill these requirements, please reconsider participating in the bidding process.

Revisions to this document reflect changes to the Site Remediation Plan and include, but are not limited to, a procedure for remedial line pressure testing, backfilling of trenches, and electrical and telephone utility installation procedures.

The remedial philosophy KDHE is promoting within this Request for Proposal is one that will aggressively and efficiently remediate the source area of contamination. It is the responsibility of the vendor to monitor, adjust, record, and suggest changes of the system operation to KDHE in order to maximize the remedial effort.

If you should have any questions, please do not hesitate to contact us at (785) 296-5931 or (785) 291-3103.

Respectfully,

Greg Hattan and Bill Reetz
Professional Geologists
Bureau of Environmental Remediation

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DIVISION OF ENVIRONMENT
Bureau of Environmental Remediation
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE. 410, TOPEKA, KS 66612-1367

Phone 785-296-1678 Fax 785-296-6190 http://www.kdhe.state.ks.us/ber/index.html

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SECTION 1.0-PROPOSAL PROCESS INFORMATION

1.1 PURPOSE- On behalf of the Owner/Operator (O/O), the Kansas Department of Health and Environment (KDHE) is soliciting bids from qualified Vendors to implement the enclosed SRP to address the site contamination associated with petroleum storage tanks.

1.2 OBJECTIVE

1.2.1 To provide information necessary for the preparation of competitive proposals by qualified Vendors.

1.2.2 To provide for a fair and objective evaluation of proposals.

1.2.3 To result in a contract between the O/O and the Vendor to provide the services as described in SRP Sections 3.0 and 4.0 of this Request for Proposal (RFP).

1.3 INQUIRIES

1.3.1 All inquiries concerning this RFP must be submitted in writing to:

Petroleum Storage Tank Release Trust Fund
1000 SW Jackson, Suite 410
Topeka, KS 66612-1367
Attn: Remediation Unit (Greg Hattan) or PWS Remedial Unit (Bill Reetz)
Fax (785) 296-6190

1.3.2 Answers to all written questions will be distributed to all participating prospective Vendors by mail.

1.3.3 In all cases, no verbal communication will override written communications and only written communications are binding.

1.4 REVISIONS TO THE RFP- In the event it becomes necessary to revise any part of this RFP, revisions will be provided in writing to all Vendors who received this RFP initially.

1.5 SUBCONTRACTORS- If the Vendor intends to subcontract any part of the work to be performed under this RFP, the Vendor must include in its proposal a complete list of potential subcontractors and a description of the work to be subcontracted. The Vendor is responsible for assuring subcontractors possess all local, state, and federal licenses required for the services they will provide.

1.6 SUBMISSION OF PROPOSAL- Two sealed copies of the proposal must be received by the Petroleum Storage Tank Release Trust Fund no later than 3:00 p.m. on the date specified on the Project Bid Proposal Cover Sheet and the Project Bid Proposal Sheet(s). Proposals should be addressed to:

Petroleum Storage Tank Release Trust Fund
1000 SW Jackson, Suite 410
Topeka, KS 66612-1367
Attn: Contractual Services Unit

The proposal must include costs for all tasks necessary to complete the specified scope of work in accordance with all requirements outlined in the RFP.

1.6.1 The outside of the envelope must be marked **"SEALED BID"** in bold lettering. The bid number(s) of the enclosed bid(s) must be displayed on the outside of the envelope. All bids sent in the same envelope must have the same bid deadline. Failure to properly mark the outside of the envelope may result in the bid(s) being disqualified.

1.6.2 Late proposals will not be opened. A letter notifying the Vendor, and documentation that the proposal was received after the deadline, will be mailed to the Vendor. The proposal will be stored in KDHE files for a period of one year beyond the closing date for the bid.

1.6.3 KDHE and/or the O/O will not pay for any information herein requested, nor are they liable for any costs incurred by the Vendor to prepare or submit a proposal.

1.6.4 Proposals must be in duplicate and must include the following completed documents:

1) Bid Proposal Cover Sheet with Vendor Information.
2) EXHIBIT 2 Project Bid Summary Sheet (multiple site bids only).
3) EXHIBIT 2 Project Bid Proposal Sheet(s). The Vendor's name must appear at the top of each sheet in the designated place.
4) List of all proposed subcontractors, major equipment suppliers, and analytical laboratories.

Proposals must be neat and legible. Proposals that are not properly submitted and/or are not complete will be disqualified.

1.7 WITHDRAWAL OF BIDS- A Vendor may withdraw a bid at any time prior to the scheduled closing time for receipt of proposals.

1.8 PROPOSAL OBLIGATIONS- The contents of the proposal and any clarification thereto submitted by the successful Vendor shall become part of the contractual obligation and will be incorporated by reference into the ensuing contract.

1.9 TERM OF PROPOSAL- All proposals shall be firm for a period of ninety (90) days after the proposal due date to allow time for evaluation of all proposals and to make an award.

1.10 DISPOSITION OF PROPOSALS- All proposals become the property of the State of Kansas upon receipt and will not be returned to the Vendor. The State of Kansas shall have the right to use all ideas or adaptation of ideas contained in any proposal received in response to this RFP. Selection or rejection of the proposal will not affect this right.

1.11 NOTIFICATION OF APPROVED COSTS- After evaluation of the proposals all Vendors who submitted proposals will be notified in writing of the approved costs for the Project.

1.12 EVALUATION CRITERIA- Due to the variable nature of sites being remediated, bids will be reviewed to ensure that line item costs are equitably distributed across all required tasks. Prices must

accurately reflect the actual cost to complete each segment of the project because additional scopes of work may be required. To avoid the potential problem of Vendors unfairly "loading" costs into certain categories to avoid cost proration, KDHE Trust Fund bid proposals will be evaluated on a line item basis. KDHE will review individual line item rates with close scrutiny.

1.13 CONFLICT OR AMBIGUITIES- Vendors shall notify KDHE immediately if conflicts or ambiguities are found in the RFP. Failure to do so prior to the specified closing date may result in these items being resolved in a manner deemed to be in the State's best interest as judged by the KDHE Storage Tank staff.

SECTION 2.0-CONTRACT INFORMATION

2.1 PURPOSE- This section will outline the type of contract contemplated and will set forth contract clauses that need to be contained in any resultant contract.

2.2 CONTRACT DOCUMENT

2.2.1 The Contract between the O/O and Vendor shall consist of: (1) This RFP and any amendments thereto, (2) the Vendors proposal submitted in response to the RFP, and (3) the Contractual Provisions form # O/O 101, 7/92 (See ATTACHMENT G).

2.2.2 For the purpose of contract uniformity, the O/O's Standard Contract (ATTACHMENT G) should be utilized.

2.2.3 In the event of any inconsistency or contradiction between this RFP and the Vendor's proposal and/or contract form, the provisions of this RFP are controlling.

2.3 RESPONSIBILITIES

2.3.1 The O/O is responsible for assuring that all work is conducted in accordance with KDHE specifications described in SECTION 3.0, 4.0 and 5.0.

2.3.2 The O/O and the Vendor selected to perform this scope of work are responsible for maintaining the initial project costs approved by KDHE. Any change to the value of this contract will be in accordance with the Vendor's proposed unit pricing and must be approved in writing by KDHE prior to the Vendor commencing any additional work.

2.3.3 The O/O and the Vendor are responsible for securing and complying with any and all federal, State of Kansas or local permits and regulations regarding the Scope of Work defined in this RFP.

2.3.4 The Vendor is responsible for bidding the project *as specified in the approved Remedial Design Plan (RDP).* Any ambiguities, errors, or omissions in the design and/or narrative should be brought to the attention of the KDHE P.M. immediately for clarification and amendments if necessary.

2.4 ERRORS IN PREPARATION- The Vendor is responsible for any mathematical error or incorrect

extension of any calculations in the Vendors price quotes. Proposals containing errors may be rejected by KDHE.

2.5 CONTRACT AMENDMENTS- Modification, amendment or any extension to a contract resulting from this RFP must be in writing. The O/O must receive prior written approval from KDHE for the changes.

2.6 COMPLIANCE WITH LAW- The Vendor agrees to comply with all applicable federal, state, and local laws, rules, regulations and ordinances; and all provisions required thereby to be included herein, are hereby incorporated by reference. The Vendor agrees to indemnify and hold the O/O and KDHE harmless from any loss, damage, or liability resulting from the violation on the part of the Vendor of such laws, rules, regulations, or ordinances.

2.7 SEVERABILITY- The invalidity in whole or part of any provision of the contract shall not void or affect the validity of any other provision.

2.8 ASSIGNMENT, TRANSFER, CONVEYANCE, SUBCONTRACT, AND DISPOSAL- The Vendor shall not assign, transfer, convey, subcontract, or dispose of any contract resulting from this RFP, or its rights, title, interest, or power to execute such assignments to any other person, company, corporation, or entity without the written consent of the O/O and KDHE.

2.9 INSURANCE- The Vendor shall maintain, at its expense during the term of the contract, the following insurance covering the services to be performed under this contract:

2.9.1 Workmen's compensation-statutory.

2.9.2 Employers liability insurance in the minimum amount of $500,000.00 per occurrence with a $1,000,000.00 aggregate.

2.9.3 Comprehensive general liability insurance of $1,000,000.00 per occurrence with a $1,000,000.00 aggregate.

2.9.4 Vehicle liability (property damage and bodily injury combined) $500,000.00 per occurrence.

2.9.5 Professional liability insurance of $1,000,000.00 per occurrence with a $1,000,000.00 aggregate.

2.9.6 The successful Vendor will provide the O/O, within twenty (20) working days of the contract signing, a certificate of insurance (Accord Form 25-S) naming the O/O as the certificate holder. The cancellation clause of the Accord Form will read as follows: **"Should any of the above described policies be canceled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the certificate holder named to the left, but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives."** A copy of this document must be provided to KDHE within the same 20 working day time period.

2.10 INDEMNIFICATION- Neither the O/O or KDHE shall be liable for any damage or compensation payable at law in respect or in consequence of any accident or injury to any worker or other person in

the employment of the Vendor or any subcontractor, save and except an accident or injury resulting from a willful negligent act or default of the O/O or KDHE.

The Vendor shall indemnify and keep indemnified the O/O and KDHE against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges, and expenses whatsoever in respect thereof or in relation thereto.

2.11 LIEN RELEASE- A lien release from all Subcontractors and Equipment Vendors must be provided as an attachment to the Final Remedial Report (FRR).

2.12 COMMUNICATION AND NOTICES- Any written notice to the Vendor shall be deemed sufficient when deposited in the United States mail, postage prepaid, and addressed to the Vendor at its address listed on the signature page of the contract or at such address as the Vendor may have requested in writing or which is hand carried and presented to an authorized employee of the Vendor at its address as listed on the signature page of the contract.

2.13 AUDIT TRAIL- The Vendor shall retain documentation of all expenditures incurred in performing the activities required by the contract for purposes of maintaining an audit trail and shall produce such documentation to KDHE and/or O/O upon written request.

2.14 TERMINATION

2.14.1 Termination for cause-The O/O or Vendor may terminate the contract resulting from this RFP at any time when either Party fails to carry out its obligations under the provisions of this RFP or to make substantial progress under the terms specified in the RFP and the resulting proposal and contract.

2.14.2 The O/O shall provide the Vendor with written notice of conditions adversely affecting performance. If after such notice the Vendor fails to remedy the conditions contained in the notice within ten (10) days the O/O may issue the Vendor an order to stop work immediately and exercise their right to terminate the contract.

2.14.3 The Vendor shall provide the O/O and KDHE with written notice of conditions adversely affecting performance. If after such notice the O/O fails to remedy the conditions contained in the notice within ten (10) days the Vendor may exercise their right to terminate the contract.

2.14.4 The O/O shall be obligated only for the services performed in accordance with the RFP specifications prior to the date of termination notice.

2.15 WAIVER- In the event of breach of contract or any provision thereof, the failure of the O/O to exercise any of its rights or remedies under this contract shall not be construed as a waiver of any such provision of the contract breached or as an acquiescence in the breach. The remedies herein reserved shall be cumulative and additional to any other remedies at law.

2.16 CONTRACT RENEWAL- When the current Operation, Maintenance, and Monitoring (OM&M)

period has expired, KDHE has the option of renewing the contract for a period of time not to exceed two years.

2.16.1 Upon completion of the current contract, line item prices may either remain at the current rate or may be adjusted based on industry and other changes. Existing line items can be adjusted according to the Federal Operating Cost Adjustment Factors (OCAF's). These rates are located in the Operating Cost Adjustment Factors (ATTACHMENT I) or the contractor can contact KDHE P.M. to obtain the adjustment factors allowable for the newest contract period. Future contract adjustments will be based upon the previous years from the original start/stop contract dates. The maximum time allowable for the adjustment will be two years. The contractor shall furnish the revised figures in the standard bid sheets format. Individual line items cannot exceed original bid price plus the appropriate adjustment factor. If parties to the contract can not agree on renewal terms, the scope of work will be re-bid.

2.16.2 OM&M Progress Evaluation: Once a project has been in OM&M status for two years, the KDHE will conduct an in-depth evaluation of the current operating system. Based upon these findings, a determination will be made to 1) continue OM&M with the current consultant, 2) put the project out for a new OM&M bid, or 3) put the project out for bid as a different scope of work. If the project is put out for a new OM&M bid the current contrator may not be eligible to be awarded the contract on the new bid.

SECTION 3.0-STATEMENT OF WORK

3.1 GENERAL INFORMATION

3.1.1 The following information is provided to assist the O/O in obtaining proposals for the scope of work necessary to accomplish the goals outlined herein.

3.1.2 The Vendor shall not modify the scope of work without specific written approval from KDHE. If the Vendor should discover problems in the SRP at any time during the project which will prevent the remedial action from being successful, the Vendor must immediately inform the KDHE P.M. of those problems. Any modifications to the proposal must be approved in writing by KDHE prior to initiation of work.

3.1.3 Vendor is responsible for insuring that work performed under this contract complies with all applicable standard operating procedures (SOP's) as included in the most recent version of the KDHE-Division of Environment Quality Management Plan (QMP) or directed by the KDHE P.M. if it is determined by the KDHE that more rigorous operating procedures are warranted. The most recent version of the KDHE-Division of Environment Quality Management Plan (QMP) can be obtained from KDHE or from the KDHE website, http://www.kdhe.state.ks.us/environment/.

3.1.4 Vendor is responsible for upkeep and cleaning of both the remedial building/trailer/system/compound and the surrounding property to the system.

This includes but is not limited to; maintaining a clean trailer, free of trash and dirt accumulation; trash, weed and grass control in the area surrounding the remedial compound; elimination of pooling water in the areas surrounding the compound; maintenance of security/privacy fencing and gates; proper gravel placement if necessary; and an overall neat general appearance. Failure to comply with this requirement could result in denial/reduction of incentive payments.

3.2 SITE INFORMATION

3.2.1 Review the site specific information for each site in EXHIBIT 1. Conduct the work described as outlined in this document.

3.2.2 Specific questions regarding the SRP contained in EXHIBIT 1 should be submitted in writing to the KDHE P.M.. Inquiries may be faxed and must reference the specific project. In all cases, no verbal communication will override written communications and only written communications are binding.

3.3 REMEDIATION PLAN EXPECTATIONS

3.3.1 With the establishment of a performance-based payment plan (see SRP Section 5.0-Reimbursement), KDHE expects remedial systems to be successfully operating at least 85% of the two year operation and maintenance period outlined in this contract. The use of incentives and disincentives is expected to increase the number of operational systems by placing more responsibility on the Vendor to satisfactorily maintain those systems. ***Bidders must include all costs necessary to accomplish the remediation plan expectations and site goals.***

3.3.2 Allowing more liberal equipment substitutions (see ATTACHMENT J, Equipment Standards) provides an opportunity for prospective Vendors to utilize more familiar equipment, which will result in greater ease in operating and maintaining the remedial systems. Section 3.4.2 Remedial Equipment Substitutions of this document outlines the procedures for approving equipment substitutions.

3.4 SITE REMEDIATION PLAN

3.4.1 SRP Goals

3.4.1.1 Implement the SRP as described in EXHIBIT 1 of this bid package according to the requirements of this document. *The SRP RFP will hold precedence over the specifications as stated in the approved RDP. Any item(s) that are not listed as part of the bid package in EXHIBIT 1, but are required in the SRP RFP, must be accounted for and included as a deliverable.*

3.4.1.2 The prospective Vendors shall develop a bid for constructing the remedial system contained in the design and provide for operational and maintenance costs for the first two years of operation. This includes a full two year warranty on all equipment. The Vendor is responsible for performing all of the operation and maintenance described in EXHIBIT 1

within the Total Project Cost. If determined to be necessary, approval for additional work will be based on line item costs detailed in the Project Bid Proposal Sheets.

Bidders must include all costs necessary to accomplish the remediation plan expectations and site goals. The successful bidder must implement the remediation plan as designed, within the approved cost for the site on a line item basis.

3.4.1.3 The Vendor is responsible for meeting the Remediation Plan Expectations and SRP Goals outlined in this section and SRP Section 4.0-Deliverables.

3.4.2 Remedial Equipment Substitutions

3.4.2.1 Equipment substitutions will not be allowed during the SRP bidding phase. All equipment will be bid as specified in the approved RDP. Equipment substitutions will only be considered during the engineering review phase.

3.4.2.2 The intent of the equipment substitution is to allow the Vendor to make equivalent substitutions for like equipment, that meet design specifications, and are beneficial to the remedial process and/or program.

3.4.2.3 KDHE reserves the right to require the Vendor to install the equipment specified in the approved RDP if an agreement on the proposed equipment substitution(s) cannot be reached.

3.4.2.4 Totally enclosed fan cooled (TEFC) will not be an allowable substitution for approved designs with Explosion-proof (XP) equipment.

3.4.2.5 Failure to bid the equipment in the approved RDP design will result in the bid considered a non-responsive bid and will not be considered for approval.

3.4.2.6 All remedial equipment installed at the site must be new from the manufacturer and represent the most recent make of the equipment specified in EXHIBIT 1 (or approved equivalent); the installation of used, refurbished or out-of-date equipment is not acceptable.

3.4.2.7 Equipment substitutions will be considered during the engineering review. The P.E. must submit a list of equipment substitutions, along with all associated equipment specifications, calculations, and all data used in determining equipment equivalency in the proposed substitution to the KDHE P.M. within the specified time frame for review by the KDHE Technical Services Staff. Failure to supply the necessary documentation will result in denial of the proposed substitution and specified equipment will be required.

3.4.2.8 KDHE will provide a bid line item if an engineering evaluation of the remedial design is applicable for the project. The RDP design engineer is

not allowed engineering hours for RDP review and is expected to install the approved design without modifications, unless approved by KDHE. The hours are to allow the installation engineer an opportunity to review the design for errors and omissions, make equipment substitutions, and make suggestions to enhance the operation of the system. All recommendations must be pre-approved prior to installation.

3.4.2.9 Equipment substitutions not approved by KDHE will be subject to reimbursement on a case by case basis.

3.4.3 Drilling Equipment and Methods

3.4.3.1 It is the full responsibility of the Vendor to evaluate the site specific geology and other relevant information and determine the drilling method(s) necessary to meet the requirements of the contract at this site.

If it is necessary to change the drilling method, the Vendor will submit in writing to the KDHE contact person a description of the proposed change a minimum of one week prior to mobilizing. The request must be submitted under separate letter from the Vendor. KDHE will review the information and provide the Vendor with a written response authorizing or denying the proposed change. All costs associated with the change will be the responsibility of the Vendor.

In some cases, wells must be completed by water washed rotary or pier rig auger drilling methods. The consultant must factor into the bid all costs related to well completion and disposal of drilling fluids and drill cutting wastes caissons, etc. All mobilization costs related to performing multiple drilling methods for the installation of the wells must be included.

3.4.3.2 The Vendor must receive written approval from the KDHE P.M. before drilling activities can begin.

3.4.3.3 All wells will be drilled and constructed by a KDHE licensed water well contractor as per the approved design specifications, unless changed by the Vendor and approved by KDHE prior to mobilizing to the site.

3.4.3.4 A Field Geologist will be on-site and oversee all drilling activities. The Field Geologist will evaluate, describe, and record the lithology, moisture content, odor, and all other observations related to the geology of the site and contamination detected during drilling activities.

3.4.3.5 The Vendor will be responsible, at their costs, for replacing wells that are constructed incorrectly, inadequately developed, and or improperly located.

3.4.3.6 The selected drilling methods and equipment must be capable of completing the wells to the depth required without causing the migration or dilution of contamination.

3.4.3.7 The minimum borehole diameter of any well constructed for a SRP project must be eight (8) inches or four (4) inches larger than the outside diameter of the casing, whichever is larger.

3.4.3.8 For hollow stem auger drilling, the drill rig capacity must follow:

If S.W.L. # 40 ft., a minimum of 3,000 ft. lbs. torque is required.
If S.W.L. 40 $ 70 ft., a minimum of 5,500 ft. lbs. of torque is required.
If S.W.L. 70 $100 ft., a minimum of 7,000 ft. lbs. of torque is required.
If S.W.L. > 100 ft., a minimum of 10,000 ft. lbs. of torque is required.

3.4.3.9 All AS wells will be drilled by water washed rotary drilling or hollow stem auger method unless otherwise approved by the KDHE P.M.. The top of the screened interval shall be a minimum of five feet below the seasonal low static water table and a minimum of five feet below the depth of soil contamination. After the gravel pack is set in place, a two foot bentonite seal using coated time release bentonite pellets shall be placed above the gravel pack. The pellets shall be poured into the annulus between the drill stem or auger and the riser at a slow rate to ensure bridging does not take place. A tape measure with a weight on it will be used to insure proper placement of the pellets.

3.4.3.10 Bentonite drilling mud will NOT be allowed for any remedial well utilizing the water washed rotary drilling method. Native mud is the preferred medium of water washed rotary drilling however; polymer drilling materials will be acceptable providing they are both biodegradable and non-polluting. The Vendor must explain in the workplan the drilling medium to be used and the procedures they will use in developing these wells.

3.4.4 Well Completions and Requirements

3.4.4.1 All drilling/sampling information will be recorded in the field notes.

3.4.4.2 The P.G. will stamp and sign the FRR verifying that all the above drilling and sampling procedures were followed as specified in both the SRP and the approved RDP.

3.4.4.3 All SVE and on-site MW's will be completed as four (4) inch wells unless otherwise approved by the KDHE P.M..

3.4.4.4 All monitoring wells and remedial wells must be securely covered until completed. The Vendor will be responsible for replacing wells damaged prior to completion.

3.4.4.5 All well completions will meet or exceed the design specification as stated in Remedial Implementation Schedule (ATTACHMENT E) with the following exceptions:

1) For wells with the top of the screened interval completed above the water table, the screen seal will be a two foot layer of hydrated bentonite

(granular, chips, or pellets). The seal will be hydrated with at least one gallon of water for every six (6) inches and completed in six (6) inch lifts. For wells with the top of the screened interval completed below the water table, the screen seal will be a layer of bentonite using coated bentonite pellets from the top of the gravel pack to the top of the static water level. In either case the pellets shall be poured into the annulus between the auger and the riser at a slow rate to ensure bridging will not take place. A tape measure with a weight on it will be used to insure proper placement of the pellets.

2) Wells where the screen seal is less than or equal to 40 feet bgs will be grouted with hydrated bentonite as described in SRP Section 3.4.4.5 above, or with a flowable bentonite or cement bentonite grout via tremie.

3) All wells greater than 40 foot bgs will be grouted by a flowable bentonite grout or cement bentonite. All grouting will be completed by pumping grout through a tremie pipe with a diameter smaller than the well casing and from the screen seal up. Hydrated bentonite (granular, chips or pellets) are NOT considered grout.

4) It is the responsibility of the Vendor to ensure that the weight and consistency of the grout is designed for the application, lithology, and depth of the well. Deeper wells must be grouted in lifts.

5) Any changes to this design must be approved by the KDHE P.M. in writing, once justification has been supplied to cause a variance from the original design. Flush-mounted wells require a variance from the KDHE Bureau of Water.

3.4.4.6 All **offsite monitoring well** completions less than 100 feet total depth shall be constructed using a minimum of two (2) inch inside diameter (I.D.) casing and screen unless otherwise specified in the site specific information. Monitoring well completions to a depth of 100 feet or greater shall be constructed using a minimum of four (4) inch I.D. casing and screen.

3.4.4.7 For monitoring wells, the screen shall be placed such that the well could be utilized as a vapor extraction well. Screen levels must follow specifications presented in Remedial Implementation Schedule (ATTACHMENT E) or discussed with KDHE P.M.. The P.E. or P.G. will either be on-site to perform all hydrologic and pilot testing activities or oversee the Field Geologist during the completion of the test(s).

3.4.4.8 Although an estimated or approximate depth to groundwater has been provided, the Vendor will be fully responsible for determining the actual depth to groundwater and completing the well(s) to the appropriate depth and in the appropriate lithology according to their intended purpose. It is the responsibility of the Field Geologist to complete and screen all wells properly. Any questions concerning well completion or any deviation in depth to groundwater and or lithology must be brought to the attention of the KDHE P.M. prior to well installation. Failure to properly locate the

wells, screen the correct interval, construct and complete the wells, and or screen the wells in the wrong lithology will result in replacement of the wells at the Vendor's expense.

3.4.4.9 All newly installed SVE/AS wells that intersect the groundwater must be properly developed and purged prior to the system start-up. Development of the well may be accomplished by the Mechanical Surging (Bailer or Surge Block) Method, or the Surge-Pumping Method. Wells that are completed in fine sand and silt sediments should consist of a compatible method so that fine-grained materials will not accumulate into the filter pack. Well development must include documentation that a minimum of 5-10 well volumes and all silts, clays, or sediment created during the drilling process inside the casing have been removed. The Vendor is solely responsible for proper development of all wells. Failure of the Vendor to remove all the sediment inside the well will result in the denial of the appropriate footage charges and/or the complete well charges. The Vendor would then be responsible for replacing the well without the benefit of reimbursement from the fund.

3.4.4.10 On completed SVE and AS wells, the contractor must wait a minimum of 72 hours prior to system start-up or pilot testing activities.

3.4.4.11 All monitoring wells must be properly developed and purged prior to sampling according to the most recent Bureau of Environmental Remediaion Standard Operating Procedure (BER SOP). If wells are not sampled immediately following development, three casing volumes must be purged prior to sampling. Groundwater must be allowed to return to static conditions before sampling. Static water level is defined as the level at which water stands in a well that is not being affected by withdrawal. It is generally expressed as the distance from the surveyed measuring point on the ground surface to the water level in the well.

3.4.4.12 In low yield wells, the Vendor must allow the groundwater to return as close as possible to static conditions before taking a groundwater sample for analysis. If static conditions are not attained or if 3 well volumes of water cannot be purged before groundwater samples are taken, the Vendor must document the reasons and include as part of the field notes and on Table 2.4, Groundwater Analytical Results.

3.4.4.13 All well completion information will be recorded in the field notes and provided to KDHE.

3.4.4.14 All well abandonments must follow KAR 28-30-7(d), included in ATTACHMENT B.

3.4.5 Field and Laboratory Soil Sample Collection and Analysis

3.4.5.1 A heated headspace analysis will be conducted on all discrete samples collected in the field, see SRP Section 3.4.5.2. The analysis will be conducted using a photoionization detector, organic vapor analysis device, colorimetric tubes or other field testing equipment approved by

KDHE for hydrocarbon analysis. Field instrumentation must be calibrated according to the manufacture recommendations for each piece of equipment at the recommended frequency. At a minimum, each piece of equipment must be calibrated daily. Field personnel must know how to properly calibrate each piece of field equipment used. Calibration records must be included in the field notes.

3.4.5.2 Each discrete soil sample collected for field analysis will be prepared as follows: fill a clean quart jar half full of the discrete sample to be analyzed, seal the jar and let it stand until the sample reaches 70^0F for a minimum of 15 minutes (allowing volatilization to occur) and a maximum of 60 minutes prior to testing.

3.4.5.3 Soil samples will be submitted for laboratory analysis as specified in Remedial Implementation Schedule (ATTACHMENT E).

3.4.5.4 One of the soil samples submitted for laboratory analysis will be the duplicate of the sample above the capillary fringe showing the highest field analysis reading within the borehole (or from the area which appears most conducive to petroleum migration if no contamination is noted). The second sample will be the duplicate of the soil sample collected from the bottom of the borehole, or immediately above the saturated zone if the boring extends to groundwater.

3.4.5.5 All laboratory analysis will be performed by a laboratory certified by KDHE for the specific analysis and laboratory method as outlined in Laboratory Methods (ATTACHMENT C).

3.4.5.6 All samples designated for laboratory analysis will immediately, upon collection, be containerized and sealed in a laboratory approved sample container for the constituent of concern, and will be properly preserved and transported to the laboratory. Reimbursement will be denied for any samples which have exceeded holding time prior to analysis.

3.4.5.7 All borings advanced to a total depth of 60 feet or less, in which remedial wells (i.e. SVE/AS wells) will be installed, will be continuously sampled with split spoon samplers, Shelby tubes, and/or continuous samplers. Sand catchers will be used when necessary to maximize recovery in sand units. All sampling methods and boring logs shall be performed in accordance with the latest ASTM Standards. Each lithologic/soil stratigraphic unit will be fully described on the drilling log and include at a minimum; soil texture, grain size and shape, sorting, color, odor, staining, relative moisture (i.e. dry, moist, wet), field screened for contaminate distribution, and other pertinent information. **Special care shall be taken to identify thin lenses of low permeability constituents that will affect treatment technologies.** If the stratigraphic unit is consistent throughout the sample collected, a composite field sample is sufficient for the field screening. **Changes of lithology/soil stratigraphy within the samples shall be field screened discretely**.

For borings with a total depth of greater than 60 feet, the upper 60 feet will be continuously sampled and logged as described above, unless otherwise approved by the KDHE P.M.. From 60 feet below ground surface to total depth of the boring, discrete soil / sediment samples will be collected every five feet for logging and headspace analysis.

3.4.5.8 During the discrete soil sampling process, duplicate soil samples will be collected from each discrete soil sample. One of the samples will be placed in the appropriate sample container for analysis in the field using the heated head space technique, see SRP Section 3.4.5, the other sample will be placed in the appropriate sample container for laboratory analysis if required.

3.4.6 Waste Disposal

3.4.6.1 Any soil borings not completed as monitoring wells will be plugged in accordance with all state regulations and guidelines as outlined in KAR 28-30-7(d), see Soil Boring Plugging Criteria (ATTACHMENT B).

3.4.6.2 All waste soils and waste water generated during the installation of the remedial system will be treated and disposed of in accordance with all local, state, and federal statutes and regulations. The costs related to such disposal must be included within this bid.

3.4.7 Trenching and Piping

3.4.7.1 All trenching and piping activities must adhere to the specifications in the approved RDP. Photo documentation will be required for all activities referenced in the section. Photos must include overall and closeups of piping installations to ensure proper bedding (sand) materials.

3.4.7.2 All plumbing lines will be imbedded in sand backfill with a minimum of six (6) inches below the pipes. Sand will also be placed in two 6 inch layers above the pipes totaling a minimum of twelve (12) inches above the highest horizontal pipe. The sand backfill shall be compacted with a mechanical compactor capable of compacting the sand backfill to a minimum of 95% of the maximum standard Proctor density. After the pipes have been embedded and compacted, the remainder of the excavation shall be backfilled using either sand, river gravel, crushed rock, or native soil. The remaining backfill shall be compacted as per stated above.
Flowable fill is an acceptable substitute as a trench backfill material. The substitution must be consulted and approved with the KDHE P.M. during the Engineering Review period.

3.4.7.3 If the system is being installed at a facility that is currently in operation,

the contractor will furnish protective covering for the trench system for continued vehicular and pedestrian traffic flow to minimize impacts to the business. For these traffic areas, a minimum of 3/4 inch plate steel, or thicker where necessary due to the width of the trench, will be used to cover the trench when not being worked on during construction and completion activities. When in the process of installation, adequate barricades shall be provided. For areas not subject to traffic, the trenching should be suitably barricaded to prevent inadvertent access to the trench by pedestrians. Vendor must adhere to all OSHA regulations pertaining to trenching and protective covering.

3.4.7.4 Prior to filling and compaction, a piping survey will be conducted to ensure that the slope of the piping is sufficient to allow condensates to drain back into the well. The survey will consist of (at a minimum) two points of each end of each leg of the system for those runs less than 50 ft. in length. For runs greater than 50 ft., an additional survey point located equidistant between the two end points must be included. A trenching/piping map including a profile for piping and slope verification, will be included in the FRR.

3.4.7.5 All trenching information including slope measurements and pipe pressure testing values will be recorded in the field notes and provided to KDHE in the FRR.

3.4.7.6 All trenching, piping, compaction, pressure testing, and the resulting survey must be overseen and subsequent drawings signed, dated, and stamped by a P.E. Licensed by the State of Kansas as per KAR-66-6-1 et seq.

3.4.7.7 Pressure testing of all underground AS/SVE system components include, but are not limited to, pipe, elbows, tees, etc. shall be subjected to a positive pressure test prior to the replacement of the trench final cover. Pressure testing of all SVE/AS lines will be conducted prior and post backfilling of trenches and/or excavated areas. Pipe segments shall be left exposed for pressure testing unless the installation contractor determines partial backfilling is required for safety. The test will require both ends of the line segment to be sealed before pressurizing to the lesser of 20 psig or one and a half times the system design pressure using a portable air compressor or air tank. The duration of each pressure test shall be at least 10 minutes. The source of pressure should be isolated before conducting each pressure test. Pressure shall be measured every minute with a suitable pressure device calibrated to within plus or minus 10 percent of the original test pressure over the duration of the test, then the segment will be determined to have passed. Partially covered line segments failing the above pressure test protocol will need to be uncovered to expose the piping and joints for inspection prior to re-

testing. Joints shall be tested by means of soap and water or an equivalent nonflammable solution in order to identify areas of leakage for repair. Final backfilling activities should not commence until all AS/SVE flow lines in the trench have passed the pressure test and the slope of each SVE line has been verified. All system testing shall be done with due regard for the safety of employees and the public.

3.4.8 Remedial Site Survey

3.4.8.1 A site survey including all remedial trenching, wells, and equipment placement as well as all other pertinent site features must be included in the FRR. The Remedial Survey must be conducted by a Registered Licensed Surveyor (RLS) in the State of Kansas.

3.4.9 Remedial System Performance Review

3.4.9.1 An engineering review, by the P.E., will be conducted twice during the first two years of OM&M, if requested by the KDHE P.M.. The P.E. will be at the facility to conduct the tests. The P.E. will repeat the baseline tests conducted during start-up to determine both current operational parameters and to insure that the system is performing according to remedial expectations. The P.E. must:

1) Check equipment to make sure all is working properly. If new gauges/meters/equipment need to be installed to gather the necessary information, they must be replaced at no cost to the project prior to conducting the review as part of the Vendor's incentive payment requirements.

2) Conduct baseline tests of the existing system to determine current operational parameters as identified in the Final Remedial Report-Section 1.0-Discussion Section 1.6 Remedial System Start-up, in the SRP RFP.

3) Identify/address additional potential source areas. Additional drilling may be necessary in areas that are not cleaning up.

4) Review of the historical remedial data to generate a comprehensive review with recommendations for KDHE to consider.

The P.E. should utilize this information to give an informed recommendation based on the results of the baseline report compared to the results of the historical data generated during the course of the previous OM&M period. The results should be indicative of what's occurring and why. System changes should be backed up with sound

engineering/geological reasons for the change. The first report will be due after the first six months of operation and included with the second quarterly monitoring report. The second report will be due one year later with the sixth Quarterly Monitoring Report (QMR). The focus of this report will be a complete review of the system and past system performance and make recommendation(s) on how to optimize system operation and/or enhance the existing design if it appears necessary. **The P.E., must be on-site during this review and prepare a comprehensive review as described above and included in the report. P.E. will date, sign and stamp the completed review.** Line items will appear on the bid sheets for these reviews.

3.4.9.2 Engineering hours are for data review/recommendation purposes. Additional engineering hours may be required if system enhancement is necessary and be negotiated on a case by case basis as an additional scope of work during the OM&M phase.

3.5 PROPERTY ACCESS

3.5.1 The Vendor is responsible for contacting facility managers, lessee, and tenant, and/or current property owner, all on-site, and off-site property owners to obtain access to construct, operate and monitor the remediation system. Contact will be verbal and in writing. Written permission will be obtained from each owner of the property that is necessary to access and must be submitted to KDHE P.M. **prior to any field activities**. A copy of the access agreement, and a copy of the site base map with the location of all proposed remedial wells, borings, trenching, and the remedial trailer/job box, signed by both the O/O of the facility, as well as the owner of the property must be submitted to the KDHE P.M. prior to any construction activities.

3.5.2 The Vendor must contact the O/O and tenant (if different) prior to mobilizing for any field activity.

3.5.3 For off-site access, the Vendor must utilize city and utility easements instead of private property when appropriate and necessary. Written permission to drill in city and utility easements must be obtained prior to equipment mobilization. In such cases, the Vendor must obtain written permission from both the property owner and the entity granting the easement. **Copies of all signed access agreements must be included in the workplan.**

3.5.4 The Vendor is expected to act in a professional and respectful manner to any local and agency authorities, utility companies, and the public in general when requesting access.

3.5.5 A compensation amount may be payable to off-site owners (see Off-Site Access Payment Schedule-ATTACHMENT Q); this amount will be eligible for

reimbursement from the Trust Fund. The payment may also be used to lease on-site property for remedial equipment payable to current property owners who did not sign the original contract or other Trust Fund Release consent agreements.

3.5.6 If authorization for property access is denied, contact the KDHE P.M..

3.6 PROPERTY RESTORATION

3.6.1 Photographs submitted in digital format must be taken to photo-document the site conditions prior to starting any field activity at the location. After construction is completed, another series of photographs must be taken to document all site restoration. Photographs will be made of on-site parking surfaces, drive ways, curbs/sidewalks, grass areas, buildings/foundations, and all secondary containment structures, foundations and retaining walls located within 50 feet of any drilling, trenching, or excavation activities. A detailed log must be generated and available to KDHE for verification of utility locates and contacts which were made prior to any activities.

3.6.2 Any property damaged or destroyed during implementation of the project must be repaired to its original condition within 30 calendar days after the damage or destruction has occurred. All damaged property (i.e. marked utilities, marked product lines, marked electrical supplies, etc.) will be repaired or replaced at the Vendors expense. Failure to restore the property to (at least) original condition, in a timely manner, will result in denial of any incentive payments and could result in disqualification from KDHE Trust Fund work.

Exceptions to this include unmarked or abandoned utilities. The vendor must notify KDHE District and Topeka offices immediately and describe the situation and affected utility or other. Decisions will be made on a case by case basis as to partial or complete payment based on known facts, witnesses, and costs of repairs. The vendor must obtain three repair quotes from local qualified, bonded professionals before repairs are made.

3.6.3 If any landscaped areas are disturbed during construction activities, the Vendor must contract with a Landscape Professional. Documentation of contract will be required.

3.6.4 Located or marked utilities damaged by the Vendor, or their subcontractors, during any activity over the lifetime of the contract, will be repaired by the Vendor. All repairs must be made by a qualified, bonded, licensed professional, and must be completed in a time frame agreeable to the affected party and the utility. Losses including business costs, hours of operation, equipment malfunctions, decrease in staff hours, etc. will be the responsibility of the Vendor.

SECTION 4.0-DELIVERABLES

4.1 WORK NOTIFICATION REQUIREMENTS

4.1.1 The Vendor will notify the O/O, the KDHE P.M., and the appropriate **KDHE District Office**, by telephone or in writing, five days prior to initiation of any work outside the routine monthly/quarterly OM&M. The notice will include the date and time work is to begin and a schedule of implementation. Failure to provide adequate notification to all necessary parties may result in denial of payment for work performed.

4.1.2 The Vendor will notify the KDHE P.M. and the appropriate **KDHE District Office**, by telephone or in writing, 72 hours in advance of the initial start up of the remedial system. The notice will include the date and time start up will take place.

4.2 DEADLINES AND NOTICE TO PROCEED

4.2.1 KDHE will notify the Vendor in writing if an engineering evaluation of the remedial design is applicable for the project. The RDP design engineer is not allowed engineering hours for SRP review and is expected to install the approved design without modifications.

4.2.2 The Vendor will sign the contract with the O/O within two weeks after the bid approval date. An Engineering Review must be submitted within two weeks after the contract has been signed. The Vendor will complete and submit the Remedial Implementation Schedule (ATTACHMENT E) to KDHE within 30 days after the contract is signed between the Vendor and the O/O, or within 15 days after the engineering evaluation is submitted, if applicable.

4.2.3 KDHE will review the Remedial Implementation Schedule (ATTACHMENT E) and provide written comment, or if approved, written authorization for the Vendor to proceed within fourteen (14) days following the date KDHE receives the schedule.

4.2.4 The Vendor may request from KDHE that written authorization to proceed be sent in the U.S. Mail to the Vendor's office at the address provided by the Vendor, or facsimile to the Vendor's office at a number the Vendor provides. Unless otherwise requested by the Vendor, written Notice's to Proceed will be sent by U.S. Mail to the contact person provided by the Vendor in the RFP.

4.2.5 The Vendor will proceed with field activities after KDHE has approved, in writing, the Remedial Implementation Schedule (ATTACHMENT E).

4.2.6 The Vendor must have a licensed electrician certify that the remedial system, including the control panel has been constructed according to NEC or UL

guidelines. A signed electrical inspection sheet by the licensed electrician will be included as per Final Remedial Report-Section 6.0-Documentation-Appendix 11.

4.2.7 The Vendor must have the remedial system(s) installed within 90 days of the SRP Implementation Schedule Worksheet (ATTACHMENT E) approval and the system must be fully operational within 120 days of KDHE SRP Implementation Worksheet approval date.

4.2.8 The Vendor will submit two copies of the FRR to KDHE within sixty (60) days of system start-up. Vendor will submit one copy to the O/O.

Note: Extensions to the implementation schedule may be allowed due to extreme weather conditions, property access or permitting problems. Extensions must be requested in writing prior to any due dates for consideration.

4.2.9 The Vendor will submit QMRs to the KDHE P.M. within 45 days after the end of the quarterly reporting period. See QMR (ATTACHMENT K) for report format; which is available to the Vendor on disk as a Quattro Pro or Excel document (contact Bill Reetz at breetz@kdhe.state.ks.us).

4.2.10 Monthly reports: The initial monthly scheduled visit due date will start 30 days after the official start-up date, with a report due within 15 days. Subsequent monthly reports will be due every 30 days thereafter, except for those months that require a QMR. The Contractor is to maintain a schedule which allows them to complete their site visits within six (6) days of the scheduled site visit. Reimbursement will be denied for monthly data submittal reports not received within 15 days of the field activity date. There is no grace period. Failure to comply with the monthly data submittal will result in denial of payment for the report. If the report is not received before the QMR, the incentive payment for that quarter will be denied.

KDHE will allow some flexibility in establishing the sampling date, to coordinate with contractor's existing sampling and remedial system operation schedule in the area. Any such variance from start up date must be requested and approved by the KDHE P.M. within the first 60 days of operation.

4.2.11 Remedial Implementation Schedule (ATTACHMENT E)- Must be submitted to KDHE within 30 days after the contract is signed between the Vendor and the O/O or within 15 days after the engineering evaluation is submitted, if applicable.

The schedule must include a complete list of all subcontractors, major equipment suppliers (defined as equipment items costing $1,000.00 or more), and all laboratories preforming analytical services. Any variation from this list must be pre-approved in writing by KDHE.

4.2.12 System Start-up: All system start-ups will be conducted during normal KDHE business hours and with concurrence of the KDHE P.M..

4.3 PROPOSAL SUBMITTALS- The Vendor is required to submit as a part of the proposal each item requested in the order and format provided below. Items marked with "*" will remain on file with KDHE and once submitted, re-submittal will be necessary only when changes are made. The Vendor must specifically state each item omitted from the submittal package and include an explanation.

4.3.1 A cover letter from the Vendor

4.3.2 Completed Project Bid Proposal Sheets

4.3.3 Copy of Insurance Certificate

4.3.4 Standard Operating Procedures for the following technical Procedures

4.3.4.1 Drilling and decontamination procedures*

4.3.4.2 Procedures for field analysis of samples*

4.3.4.3 Laboratory sample collection and handling methods*

4.3.4.4 Well development procedures*

4.3.4.5 Waste handling and disposal methods*

4.3.4.6 All other technical procedures described herein or proposed by the Vendor

4.3.5 Resumes and OSHA safety training certification of personnel proposed for the project

4.3.6 Complete list of equipment*

4.3.7 Drill Rig Specifications

4.3.8 Quality Assurance and Quality Control (QA/QC) plan*

4.3.9 Field safety plan

4.3.10 Workers Compensation Log & Summary of Occupational Injuries & Illness (OSHA form G200)

4.3.11 List of all proposed sub-contractors, major equipment suppliers, and analytical laboratories

4.3.12 Relevant education and work histories for P.G. and P.E.

4.4 SRP SUBMITTALS

4.4.1 Submit two copies of the Remedial Implementation Schedule Worksheet on the form supplied in ATTACHMENT E. Additional information should be included as needed.

4.5 FINAL REMEDIAL REPORT

4.5.1 Submit three BOUND copies of the FRR. Two copies should be sent to KDHE and one copy to the O/O(s). The FRR will be a comprehensive description of all work performed, data requested and information gathered during all activities conducted under this RFP. Note: A "cd" copy of the FRR can be sent to be distributed to the District Offices.

4.5.2 The report shall include a cover page with the following information: report title; site name; site address; KDHE project code; section, township, and range to four quarters; report date and the name of the person who prepared the report. Report must be stamped, dated, and signed by the P.E. and the P.G. as per KAR-66-6-1 et seq.

4.5.3 The report shall include a table of contents with the following information: 1) section titles (see 4.5.6 below) and page numbers of all sections; 2) tables and page numbers; and 3) a list of each Drawing, Figure, and Appendix.

4.5.4 The report shall include a labeled tab for each of the Section Titles and each Appendix. Incomplete or improperly formatted reports will be returned for corrections.

4.5.5 Provide a Release of Liens from all subcontractors, and major equipment suppliers. (Notarized Affidavits of Payment are acceptable.) Release must be included for approval of FRR. See Final Remedial Report-Section 6.0-Documentation-Appendix 8-Lien Release.

4.5.6 The FRR is not considered a QMR, nor can a QMR be included with the FRR. All QMRs must be under separate cover.

4.5.7 All engineering drawings submitted to KDHE will be stamped, signed and dated by the P.E. as per KAR-66-6-1 et seq.

4.5.8 Report Format: The FRR will include all information outlined in the format and order described as per below:

FINAL REMEDIAL REPORT-SECTION 1.0-DISCUSSION- This discussion should be as

concise and brief as possible. Use the Section titles and subtitles provided, and number each page. Do not reference or include in this section, any tables, maps, photographs, drilling logs, or other documents that will be included in this report.

1.1 Report Summary

1) Provide a brief summary of the report contents.

2) Provide a brief summary of work conducted during the implementation process.

3) Describe all permits required and obtained for implementing the SRP.

1.2 Discussion of Contamination

1) Discuss and compare the results of all laboratory analyses collected to date. Include current and past analyses.

2) Based on all laboratory data collected to date, discuss the migration of contamination and any impact or potential impact to sensitive environments or public and private water supplies. Discuss how the remedial implementation will mitigate these existing or potential impacts.

1.3 Soil Contamination

1) Describe in detail the installation of remedial systems utilized to address soil contamination. Include detailed discussion of well installation, soil removal, etc.

2) Discuss in detail any modifications to, or variances from, the remedial design which were necessary for installation of the remedial system(s). (Remember all variances must be approved by KDHE in writing).

3) Discuss in detail the system test conducted, identifying and explaining operational adjustments made for optimum system performance.

4) Discuss actual system operation and effectiveness as compared to expected parameters used for the remedial design.

5) Describe the observed performance of the remedial system/method. Describe and discuss handling, treatment, or disposal of by-products generated by the remedial method implemented; e.g., vapor and fluid effluent from the remedial process. Discuss the remedial system's effectiveness relative to meeting any established (permit) discharge requirements for effluent waste streams.

1.4 Groundwater Contamination

1) Describe in detail the installation of remedial system(s) intended to address

groundwater contamination.

2) Discuss in detail any modifications to, or variances from, the remedial design which were necessary for installation of the remedial system(s). (Remember all variances must be approved by KDHE in writing).

3) Discuss in detail the system test conducted, identifying and explaining operational adjustments made for optimum system performance.

4) Discuss actual system operation and effectiveness as compared to expected parameters used for the remedial design.

5) Describe the observed performance of the remedial system/method. Describe and discuss handling, treatment, or disposal of by-products generated by the remedial method implemented; e.g., vapor and fluid effluent from the remedial process. Discuss the remedial system's effectiveness relative to meeting any established (permit) discharge requirements for effluent waste streams.

1.5 Separate Phase Product Recovery (If applicable)

1) Discuss in detail the installation and implementation of the free product recovery system.

2) Describe any modifications to the remedial design for the product recovery system necessary for installation. All variances must be approved by KDHE in writing.

3) Discuss the observed effectiveness of the recovery system and provide the rate of product recovery.

4) Describe how the product is handled, stored on-site, and the method and frequency of product disposal.

1.6 Remedial System Start-up

1) Discuss in detail the final start-up of the remedial system(s) installed.

2) The P.E. will provide a base line report in the FRR for each component of the remedial system placed into service during start-up. At start up for SVE system(s), each SVE well is to be isolated for purposes of recording the following base line data; air flow rate, system, manifold, well head and observation well vacuum readings for radius of influence (ROI) estimates. Individual SVE well ROI's are to be determined by recording vacuum responses at monitoring wells, SVE wells and other properly screened wells (e.g. UST basin observation, free product recovery, domestic, etc.) that are within the expected ROI. It is important that no base line data be collected until

observation well vacuum response data is indicative of equilibrium conditions. Radial distances between individual extraction and observation wells must also be recorded in the field notes. This information will be used to prepare a comprehensive SVE ROI map based on individual SVE well base line data. The SVE base line report at a minimum is to include a summary of collected data in tabular form, a comprehensive SVE ROI map and a brief discussion of system adjustments (i.e. flow-balancing, flow, pressure measurements, vapor concentration readings, etc.) made to optimize contaminant removal. For systems with an AS component, provide air flow rates, system, manifold and well head pressure measurements while operating in conjunction with the SVE system. Each AS system line will be isolated in order to determine any pressure loss across the system. Allowable positive pressure loss will be subject to parameters discussed in SRP Section 3.0 Statement of Work- Section 3.4.7.7 of this document. Discuss any anomalous readings on either of the systems. Dissolved oxygen (DO) measurements will be collected at wells that intersect the water table. The P.E. will be on-site to conduct the base line testing.

1.7 Operation, Maintenance and Monitoring (OM&M)

1) Describe in detail all operation, maintenance and monitoring activities that will be required to allow continuous operation of the remedial systems at this site. Include all activities to be conducted daily, weekly, monthly, etc.

2) Discuss the schedule established for conducting operation and maintenance activities and indicate who will be conducting each segment of the work.

3) Describe any daily monitoring/observation requirements for the remedial systems and indicate who will be responsible for this task. Describe the training provided for each individual.

1.8 Engineering Certification- The SRP contractor's engineer must submit to the KDHE P.M. by registered mail a completed Certification of Completion (ATTACHMENT P) verifying that the remedial system has been implemented in accordance with the approved RDP or provide a complete list of RDP modifications approved by the KDHE P.M. and which were implemented at their discretion. The SRP contractor's P.E. is responsible for overseeing staff involved in all aspects of the on-site construction activities and is required to be present during remedial system start-up. The Certification of Completion must be signed by the owner and by the Kansas registered P.E.. Construction related testing requirements contained in the RDP specifications must be included as attachments to the Certification of Completion. A copy must also be included in the Final Remedial Report-Section 6.0-Documentation-Appendix 10.

FINAL REMEDIAL REPORT-SECTION 2.0-TABLES- The tables must be labeled with the numbers and titles provided below. Number each page of tables. Include in the table a column for each numbered item requested. Do not reference or include in this section, any discussion, maps, photographs, drilling logs, or other documents included in this report.

Abbreviations or material referenced from other publications should be explained at the bottom of the table.

Table 2.1 Summary of Work Completed- Include the following information for work completed during this phase of site work only. Provide this information in the same categories as listed on the Project Bid Proposal Sheets.

1) Total number of borings installed, including footage drilled and footage plugged.

2) Total number of monitoring wells installed, including footage drilled.

3) Total number of SVE wells installed, including footage drilled.

4) Total number of AS wells installed, including footage drilled.

5) Total number of biovent wells installed, including footage drilled.

6) Total footage drilled.

7) Total number of groundwater samples submitted for laboratory analysis.

8) Total number of soil samples field screened.

9) Total number of soil samples submitted for laboratory analysis.

10) Total number of air samples submitted for laboratory analysis.

Table 2.2 Well Completion Information- Include the following information for each well installed or sampled during this RFP. The groundwater levels in all wells must be measured on the same day, and measurements must be corrected for petroleum products detected. If product is detected, explain at the bottom of the table how the measurements were corrected.

1) Well ID number (assigned by the consultant).

2) The identification number from the KDHE well tagging Site I.D. forms.

3) The surveyed elevation of the well's vertical datum control point (survey pin) and the elevation of the top of casing.

4) Provide water level elevation, screened intervals, and the depth to groundwater (in feet) in all monitoring wells under static conditions and 30 days after start-up of the remedial system.

5) Provide the elevation and thickness of separate-phase product under static conditions and 30 days after start-up of the remedial system.

6) The dates the measurements specified in items 3, 4, and 5 above were obtained.

7) Date of well installation.

8) Volume of water removed during well development.

9) Wellhead pressures at system startup.

10) Casing diameter.

11) Total depth of casing in feet (ft. below top of casing within 0.10 inch).

12) Total length and placement of slotted screen in feet (ft. below top of casing within 0.10 inch).

Table 2.3 Soil Field Screening and Laboratory Results- Include the following information for each soil sample collected to date at the site. **Include all past samples collected and analyzed.** Present all results for each sample point in historical chronological order. Do not include information relative to soil remediation in this section.

1) Boring and well ID (see FRR-Section 2.0-Tables).

2) The depth each soil sample was collected from.

3) The field instrument used for field screening each sample.

4) The field screening results in parts per million (ppm) for every sample, including samples not sent for laboratory analysis.

5) The date each sample was collected.

6) The EPA testing method and laboratory analytical detection limit.

7) The concentrations of each constituent in parts per million (ppm).

Table 2.4 Groundwater Analytical Results- Include the following information for each groundwater sample collected from observation, monitoring wells, public water supply, and private wells associated with this site and submitted for laboratory analysis to date. **Include all past samples collected and analyzed.** Present all results for each sample point in historical chronological order.

1) Well ID number (see FRR-Section 2.0).

2) The concentrations of each specified constituent in parts per billion (ppb).

3) The volume of water purged from the well prior to sampling.

4) The date the well was purged and sampled.

5) The EPA testing method and laboratory analytical detection limit.

Table 2.5 Soils - Remedial Analytical- Since methodologies addressing soil contamination may vary; i.e., land farming, enhanced volatilization, SVE, etc., provide the following information as applicable to the remedial method utilized. The information to be provided must define a basis from which effectiveness of the remedial method can be determined. Results from analyses necessary to meet local, state or federal discharge requirements must be included in this section. **Include all past samples collected and analyzed which are applicable to the remedial action.** Present all results for each sample point in chronological order.

1) Sample media and location for each sample collected (e.g. SVE well or land farming sample point number).

2) The field screening results in parts per million (ppm); e.g., provide the air testing of vapors from SVE wells at start up and after 30 days of operation.

3) The concentrations of each constituent in units appropriate for the analytical method; e.g., analysis of soil in parts per million (ppm), analysis of air samples in ppb.

4) The date each sample was collected.

5) The EPA testing methods and laboratory analytical detection limits or field screening method.

6) Established discharge levels in appropriate units if discharge permit or authorization has been required.

Table 2.6 Groundwater - Remedial Analytical- Since methodologies addressing groundwater contamination may vary (i.e. air sparging, oxygen injection, etc.), provide the following information as applicable to the remedial method utilized. The information to be provided must define a basis from which effectiveness of the remedial method can be determined. Results from analyses necessary to meet local, state or federal discharge requirements must be included in this section. **Include all past samples collected and analyzed.** Present all results for each sample point in chronological order.

1) Sample media and location for each sample collected.

2) The concentrations of each constituent in ppb.

3) The date each sample was collected.

4) The EPA testing methods and laboratory analytical detection limits.

5) Establish discharge levels in appropriate units if discharge permit or authorization has been required.

Table 2.7 On-Site Waste Handling Results- Include the following information for wastes handled:

1) The type of wastes generated (soil, water, etc.)

2) The quantity of waste generated for each type of waste.

3) The storage methods used for each type of waste.

4) The field analyses results of the wastes during the on-site treatment process.

5) The laboratory analyses of wastes.

FINAL REMEDIAL REPORT-SECTION 3.0-MAPS- The maps listed below must be prepared as applicable to the remedial methods employed. All maps must be drawn to scale and labeled with the titles provided. Do not reference, or include in this section, any discussion, tables, photographs, drilling logs, or other documents included in this or any other report. The scale must not exceed 1 inch = 50 feet for smaller sites and 1 inch = 100 feet for larger sites. Include a north arrow, scale, and legend on all maps.

Figure 1 Site Base Map- A map which includes the Remedial Site Survey including layout of the remedial system. Include and label the location of all remedial excavation work, injection wells, SVE wells, recovery wells, and monitoring wells. Include the location of all buildings, roads, and any other major structures in the area of the contaminant plume. A copy of the site base map will be included in electronic format. Also include a map with an enlarged view of the system wells giving a clear description of the well names.

Figure 2 Groundwater Flow Map/Static Conditions- A map, adapted from Figure 1, representing under static conditions the groundwater elevation within each well, using the most recent data collected, labeled equi-potential contours, and arrow(s) indicating predominant flow paths and direction.

Figure 3 Groundwater Flow Map/Post Start-up- A map, adapted form Figure 1, representing under operating conditions the groundwater elevation within each well, using the most recent data collected, labeled equi-potential contours, and arrows indicating predominant flow paths and direction.

Figure 4 Groundwater Isoconcentration Maps- Develop all groundwater isoconcentration maps for the constituents outlined below using the most recent analytical data using Figure 1 as the base map. Sample points shall be labeled with concentrations in ppb. Each isoconcentration map shall include the location of all monitoring wells and sampling points. Isocontour lines shall be labeled with concentrations in ppb. Develop isoconcentration maps only if the constituent is detected in three or more sampling locations (wells).

4.1 Total Benzene, Toluene, Ethylbenzene, Xylene (BTEX)

4.2 Benzene

4.3 Methyl tert-Butyl Ether (MtBE)

4.4 1,2 Dichloroethane (1,2-DCA)

4.5 Polynuclear Aromatic Hydrocarbons (PAH's)(if specified in the RDP)

4.6 Naphthalene (if specified in the RDP)

4.7 Ethylene Dibromide (EDB) using EPA Method 504.1

Figure 5 Separate Phase Product Isopach Map/Static Conditions- If free product is detected, develop an isopach map depicting, under static conditions (pre start-up), product thickness utilizing Figure 1 as the base map. Each isopach map shall include the location of all monitoring wells or sampling points.

Figure 6 Separate Phase Product Isopach Map/Post Start-up- A map, adapted from Figure 1, representing under operating conditions each well location, elevation of the groundwater in each well using the most recent data collected, labeled equipotential contours, and arrow(s) indicating predominant flow paths and direction.

Figure 7 Soil Remedial Map- If contaminated soils are not being remediated in situ; e.g., land farming or composting methods are utilized, provide a detailed map depicting the layout of the soil remediation area. Include nearby permanent structures such as buildings and roads, and other important features such as potential receptors. Also, include all sampling locations.

FINAL REMEDIAL REPORT-SECTION 4.0-DRILLING LOGS- Include schematics for each boring or well drilled during this phase of the work. Do not make reference to, or include in this section, any discussion, tables, photographs, maps, or other documents included in this or any other report. Monitoring and SVE well completion schematics must be included on the relative drilling logs; groundwater recovery well completion schematics may be provided separate from the drilling log.

At a minimum, the following information must be included on each log:

1) The well ID number.

2) Date the drilling was conducted.

3) Name of the Driller and Geologist.

4) Detailed lithological descriptions corresponding to the depths measured during drilling activities. Include the color, texture, sorting, size and shape of grains,

and other pertinent information.

5) Observations such as fracturing or solution cavities, organic content, staining, odor, moisture changes, and other pertinent features.

6) Field screening results corresponding to depths measured.

7) Depth the saturated zone was encountered and elevation of static water level.

8) Monitoring well, SVE well, biovent well, AS well construction which accurately depicts the depth of the screen, blank casing, filter pack, bentonite seal, grout seal, well-head completion, and the surveyed elevation of the top of the casing and the survey elevation of the pad. This information must be included on the drilling log.

9) Provide the type of drill rig, soil sampling equipment, and soil analyses equipment utilized.

10) Specific type and amounts of well completion material used, method of placement, and amount of water used.

FINAL REMEDIAL REPORT-SECTION 5.0-SRP/AS-BUILT DRAWINGS- The plan drawings listed in items 5.1.1 through 5.1.5, inclusive, must be submitted with the report as specified. Provide the following information regarding the remedial systems as constructed. All engineering drawings submitted to KDHE will be stamped, signed and dated by the P.E. as per KAR-66-6-1 et seq..

5.1 As-built Drawings/Plans

5.1.1 Site Plan- Provide a site plan drawn to scale with a north arrow that depicts the location of all fixed objects on the facility property, the former and current UST basin(s), schematics of all remedial equipment and lines, and any other items pertinent to remedial implementation. Identify all major components of the remedial system and fixed objects on the facility property.

5.1.2 Process and Instrumentation Diagrams (P&ID)- Provide P&ID for all remedial equipment. Identify (type and size) and label all components.

5.1.3 Equipment Drawings- Provide detailed drawings, drawn to scale, of all buildings or security systems for the remedial equipment, and drawings to scale of the remedial equipment.

5.1.4 Well Drawings- Provide detailed drawings of all well completions. Include the subsurface completion of the well, the well head completion, and piping extending from the well to the remedial systems.

5.1.5 Equipment Documentation- Provide complete copies of all equipment

manuals which are supplied with or available for the equipment installed at the remediation site. A table containing serial numbers, equipment type, and manufacturer name of all remediation system equipment must be supplied.

FINAL REMEDIAL REPORT-SECTION 6.0-DOCUMENTATION- Include all information requested in the following format. Do not reference or include in this section, any discussion, tables, maps, or other documents that are included in this report or any other report.

Appendix 1-Documentary Photographs: Include at least 24 digital photographs depicting the site before any construction activities, during construction of the remedial systems, the site after system installation and property restoration, key components of the remedial systems such as vapor extraction equipment, equipment housing or containment, soil treatment locations, etc. The photographs must provide a general perspective of activities conducted during implementation and the site appearance as it will remain during the remedial project. Each photo must be labeled and correlated to an index which contains a brief description of subject of the slide and directional orientation of the view. Additionally, include with the FRR these digital photographs on a 5 1/4 inch or recordable compact disk

Appendix 2-KDHE Site Identification Forms: Include all copies of the completed KDHE Site Identification Forms.

Appendix 3-KDHE Water Well Records: Include copies of the KDHE Water Well Records (form WWC-5) for each well installed.

Appendix 4-Laboratory Data: Include all analytical laboratory reports and chain of custody documents.

Appendix 5-Field Notes: Field notes must be hand-written and signed by the individual who performed the work described therein. Each page must be signed and dated as the notes are being taken. Include copies of the following:

1) The Field Geologist's notes from the groundwater survey, if a groundwater survey was conducted.

2) All drilling logs, soil sampling notes, and monitoring well completion notes.

3) Groundwater sampling notes recording, for each well sampled, the water depth and total depth; the volume, in gallons, of water removed for well development and the volume, in gallons, of water purged before sampling; the name, address, and telephone number of the well owner and the site tenant if any private wells are sampled.

4) The Field Geologist's notes from any tests conducted, including all SVE, AS, and etc. should be included and provided to KDHE.

5) Field notes must include the daily chronological events. This includes, time of day each boring/well was initiated, completed, sampled, static water level measured, triangulation calculations and all pertinent

information relevant to the assessment. Field notes should not include a general summary of methods and procedures used during the assessment. Include copies of all notes and drilling sample logs maintained in the field.

Appendix 6-Off-Site Waste Handling Documentation: Provide documentation indicating how wastes addressed off-site were handled and treated.

Appendix 7-Site Remediation Permits: Provide copies of all permits which are required for implementation of the SRP.

Appendix 8-Lien Release: Provide copies of Lien Releases for all subcontractors and equipment Vendors.

Appendix 9-Trenching/Compaction Test/Slope Verification Map/Pipe Tightness Test: Provide copies of all verification related to trenching and piping as required by the approved RDP and SRP**.**

Appendix 10-Engineering Certification: Refer to FRR-Section 1.0-Discussion, Section 1.8.

Appendix 11-Electrical Inspection Sheet: Provide electrical inspection sheet with signature of licensed electrician conducting the inspection.

4.6 QUARTERLY OPERATION/MAINTENANCE AND MONITORING REPORTS (QMR)

4.6.1 The QMR's are designed to contain the operational information collected during the vendors site visits. However, it is the Vendors responsibility to review the collected data and make suggestions or recommendations on how to improve or continue optimization of the system(s). In addition, when site visits are conducted it is the responsibility of the Vendor to make necessary adjustments to the operating system for optimization. It is required the Vendor records operational data upon arriving at the site, make necessary adjustments as needed to adjust for barometric, geologic, mechanical variations, etc., then record the new system values after adjustment.

4.6.2 A sample QMR is provided in ATTACHMENT K, and is available to all Vendors on disk as a Quattro Pro or Excel document (contact Bill Reetz at breetz@kdhe.state.ks.us). **THIS FORMAT MUST BE USED FOR ALL QMR's.** Two hard copies of each QMR must be submitted to KDHE within 45 days after the end of the quarterly reporting period. The QMRs must be bound.

4.6.3 Provide a brief write-up of system operation during the quarterly period. Include any problems experienced with the systems, any equipment that doesn't work, and steps taken by the Vendor to rectify these problems.

4.6.4 **Quarterly Isocentration Maps**: Included with each QMR will be isoconcentration

maps of Total BTEX, Benzene, MtBE, as well as any other chemicals of concern as listed in EXHIBIT 1 of the SRP RFP.

4.6.5 **Composite Historical Contamination Trend Map:** This should be an ongoing composite map of quarterly snapshots of the above referenced contamination plumes. These should be, at a minimum, 3 X 4 inch reduction of the isoconcentration maps from FRR-Section 3.0-Maps-Figure 4 and placed on 11 X 17 inch paper.

4.6.6 **System Performance Review:** As referenced in the SRP-Section 3.0-Statement of Work-Section 3.4.9, the P.E. will submit a system performance review, if requested by the KDHE P.M., and include as an attachment to the second and sixth QMRs. The engineering review will be stamped and signed by the P.E..

SECTION 5.0-REIMBURSEMENT

5.1 Reimbursement Guidelines

5.1.1 All Requests for Reimbursement must be submitted in duplicate and must include the following:

1) Completed Request for Reimbursement forms signed by the O/O or their authorized representative. (Must be original signatures - copies not accepted.) Request for Reimbursement forms must be complete, clean and accurate.

2) If the Request for Reimbursement is being submitted by the Vendor as "Attorney in Fact" for the O/O, then the following must occur:

a. A copy of the "Attorney in Fact" agreement must either be on file with KDHE, or included with the request.

b. The Request for Reimbursement form must be marked to indicate it is being submitted as "Attorney in Fact" for the O/O.

c. The Request for Reimbursement form must shown the correct remittance address.

3) Vendor invoices must be in the same format as the Bid Proposal Sheets.

4) Time sheets for all field personnel during the Drilling, Construction and Start-up phases. See Time Sheets-ATTACHMENT F.

5) Completed Monitoring/OMM Event Summary sheets for all monthly and quarterly activities. See Monitoring/OMM Event Summary-ATTACHMENT N.

5.1.2 Total reimbursement will not exceed the lesser of the actual costs incurred or the total cost for each line item in the Project Bid Proposal Sheet unit pricing.

5.1.3 The Vendor will only receive payment for work conducted and accepted in accordance with the specifications outlined in this document.

5.1.4 Payment to the Vendor will be prorated in accordance with actual work performed (i.e.

if only 50% of the scheduled drilling activities are required then 50% of the drilling activities will be reimbursed). The following categories will be prorated: Drilling Activities, Waste Handling and Treatment, Sampling and Analytical, Permits, Non-Lump Sum items on Project Bid Proposal Sheets (i.e., trenching, etc.).

Costs for equipment not required in the remedial design will be reimbursed by the following guidelines: 1) the Vendor will obtain three bids for KDHE approval, 2) KDHE will reimburse lowest bid cost plus 10%, and 3) labor costs for installation will be reimbursed with prior approval in writing by KDHE.

5.1.5 The Vendor may submit invoices for reimbursement at the following stages of the Project:

Implementation schedule	Work must be completed.
Drilling	Work must be completed.
Start-up	Work must be completed.
Final Remedial Report	Work must be completed.

Once the implementation has been completed KDHE will require that bills be grouped by the applicant so that no more than one Request for Reimbursement is submitted each month to cover all on-going expenses such as utilities, sewer charges and consulting fees for the site.

5.2 Remediation System Performance Payments

5.2.1 Amount Withheld

5.2.1.1 Upon approval of the bid amount, 20% of all costs, including equipment and labor, for each of the following categories will be held back (whichever technology is applicable to the project):

- Implementation schedule
- Drilling Activities
- SVE system installation
- AS system installation
- Bioventing system installation
- Free product recovery system installation
- Off-gas treatment system installation
- Any treatment system installation not listed above
- Start-up
- FRR

5.2.1.2 Twenty percent will be released from each category when:

1) The Vendor provides adequate documentation to the KDHE P.M. showing that the system has been successfully operating for 90 days.

Hour meters and telemetry systems must be fully operational before the system is considered successfully operational. The system must operate at optimal design parameters, or at maximum efficiency as dictated by current site conditions at start-up and agreed upon by the KDHE P.M. to be considered a successfully operating system.

2) All required signatures and documentation including the FRR has been submitted and approved. The As-Built report must include release of liens from all subcontractors, major equipment suppliers and analytical laboratories.

5.2.2 Incentive Payments

5.2.2.1 Upon approval of the bid amount, an additional sum for the amount of 10% of the total project cost will be encumbered and set aside.

5.2.2.2 This amount will be divided into 8 equal payments, to be paid at the end of each quarterly monitoring period during the two year operation and maintenance period.

5.2.2.3 Incentive payments are intended for active remediation systems only. Incentives will not be paid for excavations, public water treatment systems, oxygen enhancement installations, or other enhanced natural attenuation projects.

5.2.2.4 If any unapproved deviation from the design is found in use on the site, no incentive payments will be made for the life of the project, until corrected and approved by KDHE.

5.2.2.5 Payment for each quarterly monitoring period will be based on the following criteria:

- Operational time for the remedial equipment

a. QMR-ATTACHMENT K will be used to document operating hours for each piece of equipment. Hour meters and telemetry systems must be completely installed and operational for the system to be considered operational. Any operating time omissions will result in nonpayment of the report for that quarter.

b. Equipment Building Log-In Sheet-ATTACHMENT L is a log sheet to be posted on a clipboard inside the remedial equipment building. Anyone entering the building must sign in and provide appropriate information. A copy of this sheet will be submitted with Attachment K.

c. ATTACHMENT M is an operational status sheet to be faxed to the

KDHE P.M. **within 48 hours** when there is any change in the operational status of a remedial system.

d. It is the responsibility of the Vendor to provide adequate documentation as to the uptime of the system and successful system operation. This should include, but is not limited to, time charts, time clocks, flow totalizers, sign-in sheets, remote telemetry system data logger information, data from bypass valves, electrical usage, dissolved oxygen readings, both manifold and wellhead readings for SVE and AS, and correspondence with the KDHE P.M..

- Operation of the remedial equipment at design capacity

  a. QMR-ATTACHMENT K will be used for quarterly reporting purposes. Any operational omissions (flow rates, etc.) or analytical omissions will result in nonpayment for that quarter.

  b. Any deviation from expected remedial design capacity due to changing site conditions or other valid reason must be agreed upon by the KDHE P.M. for the system to be considered operational.

  c. An exception may be made if a technology has been partially shut down pending confirmation that remedial goals have been achieved for that part of the contamination plume. This will only be allowed if written approval from KDHE Trust Fund staff is provided of the intent and approval.

  d. Basic calculations should be generated to determine initial sparge injection pressures based on known water levels, top of well screen, etc. If sufficient pressure is not injected to overcome hydrostatic head and produce air flow into the aquifer, the entire AS system will be considered ineffective and will not be considered for incentive purposes.

  e. Projects which involve more than one remedial technology (i.e. SVE, air sparging, free product recovery, etc.) or more than one system at a site, will be paid out based on the technology that operates the least. An exception may be made if a technology has been partially or temporarily shut down pending confirmation that remedial goals have been achieved. This will only be allowed after discussion with the KDHE P.M. and if written approval from KDHE Trust Fund staff is provided.

- Area surrounding system and the equipment enclosure must be maintained, as referenced in 3.1.4.

- Documented completion of remediation prior to end of two year period will result in full incentive payment of remaining quarters, if remaining

SRP requirements have been satisfied.

5.2.2.6 Quarterly incentive payment plan

- Remedial system operating 85% or more during that quarter at design capacity

  Payment = 100%

- Remedial system operating 85% or more during that quarter at reduced capacity

  Payment = 90%

- Remedial system operating 50% or more, but less than 85% during that quarter at design capacity

  Payment = 50% - 85% (actual percent operational)

- Remedial system operating 50% or more, but less than 85% during that quarter at reduced capacity

  Payment = 50% - 85% (actual percent operational) minus 10%

- Late QMR

  Payment = 10% reduction per full week past deadline (used in conjunction with any of the above scenarios)

- Up to 25% reduction for not maintaining a clean site/compound.

  When a quarterly incentive payment has been approved, the payment will be included with the reimbursement for the Vendor's invoice from the next quarterly OM&M event.

5.2.3 Disqualification

5.2.3.1 Remedial system operating less than 50% during a quarter at any capacity:

- No quarterly incentive payment

- Ineligibility to bid on Trust Fund site remediation projects until system has been continuously operational for 60 days or is at greater than 50% operating status during subsequent quarter.

5.2.3.2 Remedial system operating less than 50% of the time at any capacity for more than one quarter without written deadline extension for design modification from Trust Fund staff.

5.2.3.3 FRR 60 days beyond established deadline.

5.2.3.4 QMR 60 days beyond established deadline.

5.2.3.5 Using any used equipment on the project.

5.3 Documentation Requirements

5.3.1 Daily time sheet logs, signed by the Vendor on-site supervisor and the on-site P.M., must accompany all Vendor invoices for services provided. Daily time sheet logs included in Time Sheets-ATTACHMENT F will be used for this purpose.

5.3.2 Equipment usage log sheets, signed by the Vendor on-site supervisor and the on-site P.M., must accompany Vendor invoices.

5.3.3 It is the responsibility of the Vendor to provide adequate documentation as to the uptime of the system and successful system operation. Hour meter readings are essential documentation for verifying operational up-time of equipment. Hour meters must be wired correctly to record actual time of operation of each piece of equipment. KDHE will no longer solely allow time charts, flow totalizers, sign-in sheets, telemetry system information, data from bypass valves, electric usage, etc. to verify equipment uptime for purposes of Incentive Payments. Failure to provide actual hour meter readings, or hour meters that are wired incorrectly, will result in denials of incentive payments for the quarter and could result in disqualification from future SRP work.

5.3.4 Vendor invoices must be submitted in the same format as the Bid Proposal Sheets.

5.3.5 Failure to adequately provide proper documentation will result in denial of the incentive payment for that quarter.

SECTION 6.0-PROPOSAL DEFINITIONS

6.1 **AIR SAMPLES**- This item shall include total cost associated with the collection and analysis of air samples taken (i.e., purging, labor, equipment, shipping, etc.). All samples shall be analyzed in accordance with the criteria provided in this document for the constituents outlined in the bid sheet. Provide the per sample cost for analysis of each constituent indicated.

6.2 **AIR SPARGING COMPRESSOR SYSTEM**- The air sparging compressor system must meet or exceed the specifications provided within the design contained in EXHIBIT 1. This must include the cost of equipment purchase and repair or replacement of compressor motor or other system component for the air sparging system upon failure for a period of two years after start-up.

6.3 **AUTO-DIALER/TELEMETRY SYSTEM**- This item shall include all labor, equipment and materials necessary to install an automatic dialing telephone alert/telemetry monitoring system. The system must meet or exceed the specifications within the design plan contained in EXHIBIT 1.

6.4 **BORING PERMITS**- This item shall include the cost charged by the local government entity for drilling or installing a soil boring or monitoring well on city property, city easements, or any other property.

6.5 **COMPOSITE HISTORICAL CONTAMINATION MAPS**- This item shall include all costs to generate and include in the QMR a compilation of past quarterly isoconcentration maps of requested analyte(s). This map will be a time series of approximately 3 X 4 inch reductions of each quarterly map. Initial map format should be on 8 X 11 inch paper and expanded to 11 X 17 inch paper as necessary.

6.6 **CORRECTIVE ACTION-** This means all action necessary to contain, collect, control, identify, analyze, cleanup, treat, disperse, remove, or dispose of soils and groundwater contaminated by a release of petroleum products from a storage tank.

6.7 **DATA SUBMITTAL**- This will involve the cost related to data submittal with a cover letter to KDHE within 30 days of the monthly sampling during the monthly site visit.

6.8 **DECONTAMINATION**- This item shall include the per foot cost for all sampling and drilling decontamination equipment and supplies as described in the KDHE SOP, BER-05.

6.9 **DIRECT DISCHARGE**- This item shall include all labor, equipment, and supplies to discharge waste waters generated during remedial plan implementation. This only applies for waste water that can be discharged without prior treatment such as air stripping, carbon, etc. **All applied methods must comply with local, state, and federal laws.**

6.10 **DRILL RIG/WITH CREW**- This item shall include all costs associated with use of the drilling rig, drilling crew, and all drilling equipment. This should only include the driller and helper(s). Do not include any professional field staff responsible for collecting and conducting field analyses of drilling samples. This item must be bid on a footage basis. If additional footage is required, reimbursement will be on a per foot basis.

6.11 **ELECTRICAL HOOK-UP**- Includes all equipment, supplies, and labor costs to install and hook-up the electrical system from the electrical meter to the remedial system control panel to make the remediation system(s) operational. The work must be performed in accordance with EXHIBIT 1. (The local electrical utility service installation charges will be handled by direct billing to KDHE and directed to the attention of David Caldwell.)

6.12 **ELECTRICAL METER AND PRIMARY ELECTRICAL SUPPLY**- This item should include all costs of having a separate meter installed on site to supply power for operation of the remedial system(s). The meter must be wired to allow the required power for operation of all remedial equipment. For main electrical supply (Westar, etc.) the vendor must contact the local

power supplier first and make primary arrangements for establishing electrical service. The vendor should then contact David Caldwell, KDHE, at 785-296-0624, or email dcaldwel@kdhe.state.ks.us with names and phone numbers of their service supplier contacts. Mr. Caldwell will then call or write to authorize the service.

6.13 **ENGINEERING REVIEW**- This line item must include costs for the P.E. to review the RDP, as per SRP Section 3.0-Statement of Work-Section 3.4.2.8. The goal of the review is to identify errors in the remedial design which will prevent successful operation of the remedial system and recommend equipment substitutions. This line item will be bid as an hourly rate. This line item will not be allowed if the contractor responsible for the original design (SSA, RDR/RDP) is the engineer for the successful bidder for the SRP.

6.14 **EQUIPMENT TRAILER**- This line item must include all labor and costs related to purchase, securing title, licensing, transportation, and installation of the equipment trailer shown in EXHIBIT 1. It is the responsibility of the Vendor to insure that the applicant secures the title and tag for the trailer. The ensuing property tax will be a reimbursable expense. Liability insurance will be the responsibility of the Vendor while in tow. The trailer must be set on the site in accordance with all applicable codes and regulations. This line item will be bid as a lump sum. All remedial trailers are to be factory insulated in the walls and ceiling including plywood or similar covering for protection and support.

6.15 **EQUIPMENT BUILDING**- This line item must include all costs related to installation of the equipment building shown in EXHIBIT 1. The building must be installed in accordance with all applicable codes and regulations.

6.16 **FIELD GEOLOGIST-** This is the designated site representative for the vendor. This position works under the direct supervision of the vendor's designated "P.G.". Minimum qualifications for this position are:

1) Has a BS in Geology from an accredited four year college or a related degree with a minimum of 30 semester hours of geologic course work.
2) Has overseen drilling activities and has described and recorded the subsurface lithology during the drilling of at least 21 boreholes.
3) Has performed a minimum of 3 successful soil vapor extraction (SVE)/air sparge (AS) tests with a duration of at least eight hours per test.

6.17 **FIELD NOTES-** These are a complete and accurate account of all field activities that relate to work conducted on a Trust Fund site. The notes are to be kept in a bound, hard covered notebook with waterproof, resin impregnated paper. Field notes are a legal document and must be treated as such with a new page for each day work is conducted. All entries must be legible, and errors should be lined out with a single line with no erasing. The notes should include but not be limited to date, time, site name/project number, weather conditions, drill crew/field staff/support personnel, and contacts on and off site. A complete description of all field activities must be recorded: field equipment calibration, drilling and excavations with drill rig size/type and/or equipment used, amounts and types of material used, depths reached, lithologies and field readings, all amounts of material used for completions; pilot testing: distance from each

extraction or injection well to each observation well, and other information detailed under SVE or AS testing; trenching/piping installation: description of soils removed, bedding material, and piping elevation survey information; and all information needed for complete record keeping. Hand drawn maps/charts should be included when necessary. At the end of the work day, a diagonal line will be drawn through any remaining space on the page and the keeper of the field notes shall sign and date the page. Field notes must be made available upon request by KDHE personnel, and included within Appendix 5-Field Notes of the SRP report.

6.18 **FIELD STAFF**- All field staff required to complete the remedial implementation must be listed within the bid proposal sheets. Accurate projections must be provided for each class of staff needed to perform the scope of work, to insure that reimbursement will be provided for this phase of the work.

6.19 **FIELD TEST EQUIPMENT**- This item shall include the per day costs to use the listed field analytical equipment such as a photoionization detector, organic vapor analyzer, colorimetric detector tubes, interface probe, etc.

6.20 **FINAL REMEDIAL REPORT (FRR)**- This item shall include all labor and equipment cost to properly complete and submit the FRR. The FRR requirements and format are included in SRP Section 4.0-Deliverables-Section 4.5 Final Remedial Report of this document.

6.21 **GROUNDWATER FLOW MAPS**- This line item consists of maps which include the area of the contaminant plume as detected during this phase of work. Include and label the location of all groundwater probes, soil borings, and wells. Include the location of all buildings, roads, underground and aboveground storage tanks, pump islands, product lines, and any major structures in the area of the contaminant plume. Indicate the current elevation of groundwater in each monitoring well. Include labeled equi-potential contours and an arrow showing the predominant flow direction.

6.22 **HAZARDOUS SUBSTANCE-** This shall have the meaning ascribed to such term by section 101 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 of the United States as in effect on January 1, 1992.

6.23 **HOUR METER**- This item shall include all labor, equipment and materials necessary to install a totalizing hour meter. The hour meter will be installed so that the meter will record the total time that each piece of the remediation system has operated. The hour meter must be wired so that it records actual up-time of each piece of equipment. The hour meters are not to be "hot-wired" for continuous operation. Failure to properly connect each hour meter will result in denial of that Quarterly incentive. The hour meter must meet the specifications within the design plan contained in EXHIBIT 1.

6.24 **ISOCONCENTRATION MAPS**- This line item, using the same base map as used in the above described groundwater flow map, will plot the most current analytical groundwater data at each monitoring well for each requested analysis (Benzene, BTEX, MtBE, 1,2-DCA, Naphthalene, EDB). Sample points and isocontours will be labeled in ppb. Develop isoconcentration maps only if the specific contaminant is detected in three or more wells. All maps must be updated if

business name changes and/or site alterations have occurred due to construction activities.

6.25 **KNOCK-OUT WATER ANALYTICAL AND DISPOSAL**- This item shall include all labor, equipment and supply costs that are necessary for handling, storage, treatment, laboratory analysis and disposal of water collected from SVE system water knock-outs. **All applied methods must comply with local, state, and federal laws.**

6.26 **LAB METHODS**- This item shall include designation of the EPA methods to be used for laboratory analysis of soil and water samples.

6.27 **LABORATORY NAME**- This item shall include the designation of the KDHE approved laboratory that will be performing the analyses of water and soil samples.

6.28 **LANDSCAPED AREAS**- This is any area located within the remedial project that has either been previously landscaped or where grass and vegetation have been maintained. These areas will require a professional landscaping company to do the restoration back to at least original conditions.

6.29 **LANDSCAPING PROFESSIONAL-** This defines an individual or company that engages in landscaping activities as a primary or substantial source of revenue. A Landscaping Professional must possess a tax ID number and liability insurance under the company name. The landscaping professional cannot be an employee of the general contractor.

6.30 **MECHANICAL SURGING METHOD-** A method by which groundwater is forced in and out of the well through the well screen by the use of a bailer or surge block in an up and down motion within the well casing. Following mechanical surging, a bailer or a pump should be utilized to remove the dislodged sediments until the groundwater is clear.

6.31 **MISCELLANEOUS**- The Vendor must list separate items which are needed to implement this phase of the remedial design under this category. All bidders must review the design to insure that all required equipment specified within this RFP is priced. Items not included will not be reimbursable.

6.32 **MOBILIZATION**- This item shall include the cost of mobilizing staff and equipment from their duty station to the site for the required work. All staff time and vehicle expense must be included within this category where this term is used within the bid sheets.

6.33 **MONTHLY MAINTENANCE AND MONITORING**- Items under this category must account for all work required as stated in the approved RDP.

6.34 **MONTHLY DATA SUBMITTAL**- This line item consists of submitting to KDHE data collected during monthly visits. KDHE has developed a two page form which will be completed and submitted to KDHE within 15 days of the scheduled site visit day. Reimbursement for late or incomplete monthly data submission will not be granted.

6.35 **MW TO SVE CONVERSION**- This item must include all equipment needed to convert the

wellhead of each monitoring well to an SVE well. The configuration of the SVE wellhead is shown in EXHIBIT 1.

6.36 **OFF-GAS TREATMENT SYSTEM**- The off-gas treatment system must meet the specifications provided within the design contained in EXHIBIT 1. This must include the cost of equipment purchase and repair or replacement of the off-gas treatment system or other component of the off-gas treatment system upon failure for a period of two years after start-up.

6.37 **OFF-SITE TREATMENT**- Includes all activities involved with transporting and treating excavated soils as outlined in the design plan contained in EXHIBIT 1. Contaminated soils will be treated to KDHE standards for soil remediation. Costs for sampling and laboratory analyses associated with the treatment process must be included within this category. **All applied methods must comply with local, state, and federal laws.** Documentation of transportation and treatment methods must be submitted to KDHE.

6.38 **ONGOING OPERATIONAL COSTS**- The ongoing operational costs categories are for establishing the routine unavoidable costs which are not dependent on the contractor implementing the clean-up. These costs will not be included in the total project cost; however, they will be used to encumber future utility and permitting costs. KDHE will only reimburse for the actual fees incurred; labor costs will not be reimbursed.

6.39 **ON-SITE SUPERVISION**- The on-site supervision must be performed such that the remedial system is installed as designed. This category must include the P.E. and all other staff which will provide labor and over-sight during the construction phase of the project. Provide the title of the individual who will perform the duties. This item shall be bid on an hourly basis. **P.E. must oversee all aspects of the installation.**

6.40 **OTHER**- This item shall include all costs not included in other items of the cost proposal sheet. If this category is used, the bidder must list each item and briefly explain its function.

6.41 **OTHER POLLUTANT-** This defines any substance determined by the Secretary of Health and Environment that poses a substantial present or potential hazard to human health or the environment when released. The term does not include radioactive materials regulated by K.S.A. 48-16-01 et seq.

6.42 **OTHER STAFF**- This item shall include the cost for other staff that are necessary to properly complete the tasks required in the categories listed. Provide the title of the individual who will perform the duties. This item shall be bid on an hourly basis.

6.43 **OWNER'S REPRESENTATIVE-** When used in the bid package, this shall mean the representative of the owner.

6.44 **PAVEMENT REPLACEMENT**- All pavement replacement shall conform in type, thickness and quality to the pavement removed, and shall be at least the thickness of the original pavement.

6.45 **PER DIEM**- This item shall be a fixed price per person to cover lodging and expenses. Per

Diem will be approved only for each night an employee is required to remain on site overnight.

6.46 **PERMITS AND EASEMENTS**- This item shall include all labor, mobilization, equipment, supplies, and any other costs necessary to obtain all the listed permits and easements to implement the RDP and construct and operate the remedial system.

6.47 **PETROLEUM-** This defines petroleum including crude oil or any fraction thereof, which is liquid at standard conditions of temperature and pressure, including but not limited to, gasoline, gasohol, diesel fuel, fuel oils and kerosene.

6.48 **POTENTIAL MAINTENANCE COSTS**- The potential maintenance costs categories will be included in the total project cost and will reflect all expected costs incurred by the contractor during one maintenance event.

6.49 **PRODUCT DISPOSAL**- This item shall include all labor, equipment, and supply costs that are necessary to handle, treat, and dispose of separate phase petroleum product generated during remedial activities. **All applied methods must comply with local, state, and federal laws.**

6.50 **PROJECT COORDINATOR-** This means the KDHE Central Office staff person designated to be the primary contact between the Vendor and KDHE regarding cost approval.

6.51 **PROJECT ENGINEER-** This is the person designated by the Vendor to oversee the implementation of the SRP. The minimum qualifications for this position are:

1) Currently a licensed P.E. in the State of Kansas.
2) Has successfully implemented a minimum of five remedial systems that are similar to the type(s) specified in this SRP, and they are or have been successful in remediating the contamination.

The P.E. will be on-site during start-up and at the six and eighteen month engineering review.

6.52 **PROJECT GEOLOGIST**- This position is either the designated site representative for the Vendor,or the designated supervisor of the Vendor's "Field Geologist(s)". This item shall be bid on an hourly basis. The P.G. for the project must be a licensed Geologist in the State of Kansas and meet all minimum qualifications of a "Field Geologist". This position is responsible for the preparation and certification of all geological information in reports and maps.

6.53 **PROJECT MANAGER-** This position is the KDHE staff geologist designated to be the lead technical interface with the Vendor.

6.54 **PROPERTY RESTORATION**- Will include all costs of restoring the site to conditions prior to installation e.g., re-seeding, concrete replacement, and other required restoration. This will involve a Professional Landscaping contractor in many instances.

6.55 **PUBLIC MEETING/NOTIFICATION**- This includes all costs necessary to organize a public meeting including advertising, local notification, and room rental (if necessary) prior to system

installation and present to the public a basic summary of site activities. This includes contacting the appropriate people to establish a date, time, and location for the meeting. The P.E. must be available to answer technical questions regarding the remedial equipment.

6.56 **QUARTERLY REPORT**- Includes all the staff time and supplies required to prepare the QMR defined in FRR Section 6.0-Documentation-Section 4.6-QMR's.

6.57 **RELEASE-** This includes any spilling, leaking, pumping, pouring, emitting, discharging, injecting, escaping, leaching, dumping, or disposing of any hazardous substance into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any Hazardous substance).

6.58 **REMEDIAL EXCAVATION**- Includes all activities involved with installing underground equipment to the appropriate depths in remedial trenches. This will involve cutting and removal of concrete and backfilling once installation has been completed. Must include all equipment and staff required for completion. All materials not listed separately must be included within this category.

6.59 **REMEDIAL SCHEDULE/PLAN**- This item shall include all labor and equipment costs to properly complete and submit the Remedial Schedule/Plan. The deadlines and proposal submittals for the Remedial Schedule are included in SRP Section 4.0-Deliverables-Section 4.2 and 4.3 respectively.

6.60 **REMEDIAL SITE SURVEY**- This line item includes all costs necessary to conduct a survey of the system installation. This will include information from the full site survey in the RDP including building location, parking lots, streets, pump islands, monitoring wells, and new information including the location of the remedial system, trenching, SVE/AS/extraction wells, and pertinent information as related to the remedial system. This survey will be conducted by a Registered Land Surveyor (RLS). This is a one cost item and will be conducted after all of the system has been installed.

6.61 **RIG MOBILIZATION**- This item shall include all costs for moving drilling equipment, drilling personnel, and drilling supplies to and from the site and at locations throughout the site. Only one mobilization has been allowed and all rig mobilization costs must be included for SVE wells and AS injection wells. Costs for multiple rigs, if required, must be included.

6.62 **SOIL EXCAVATION AND BACKFILL**- Includes all activities involved with excavating contaminated soil and backfilling with appropriate material as specified within the design plan contained in EXHIBIT 1. This will include cutting, removal and disposal of concrete, asphalt, and other debris that may be encountered during the excavation process. Must include all equipment and staff required for completion. All materials not listed separately must be included within this category. This item will be reimbursed on the actual cubic yardage removed. The numbers provided are for determining low bid.

6.63 **SOIL SAMPLES**- This item shall include total cost associated with the collection and analysis of samples taken (i.e., labor, equipment, shipping, etc.). All samples shall be analyzed in

accordance with the criteria provided in this document for the constituents outlined in the bid sheet. Provide the per sample cost for analysis of each constituent indicated.

6.64 **SOIL WASTE**- This item shall include costs for handling and treating drill cuttings generated during the drilling process. Methods of handling and treatment of soils will be as follows: scarification -achieved by spreading hydrocarbon contaminated soils **6" thickness or less** across the site and turning it until the contamination level, based on field screening methods, falls below KDHE standards for soil remediation. Scarification of soils must be located away from receptors such as sewer inlets, open boreholes, etc. **All applied methods must comply with local, state, and federal laws.** These handling and treatment methods are not approved for waste saturated with petroleum products. It is the responsibility of the Vendor to secure a location for disposal of soil waste generated with the RFP.

6.65 **SURGE-PUMPING METHOD-** A method by which groundwater is forced in and out of the well through the well screen by the use of a submersible pump repetitively being turned on and off every few minutes. When the pump is turned on, groundwater is forced into the well. When the pump is turned off, groundwater within pump-line will surge back through the system. Following surge pumping, the pump will be utilized to remove the dislodged sediment until the groundwater is clear.

6.66 **SUPPORT VEHICLE**- This item shall include the cost for all vehicles necessary to transport all staff performing the work during the implementation phase of the work. This item will be bid on a per day basis per vehicle and is inclusive of all incidental costs i.e., tolls, maintenance expense, gasoline, etc.

6.67 **SURVEYING**- This item shall include the cost for surveying by a Registered Land Surveyor. This item shall be bid as one cost for all required surveying.

6.68 **SVE BLOWER SYSTEM**- The SVE blower system must meet the specifications provided within the design contained in EXHIBIT 1. This must include the cost of equipment purchase and replacement of blower motor or other system component for the SVE blower system for a period of two years after start-up.

6.69 **SYSTEM START-UP**- The number of mobilizations and days of per diem required for system start-up have been left blank. This will allow the Vendor to determine whether it will be more cost effective to keep the staff on-site or transport staff to and from the site during the daily and/or weekly inspections throughout start-up. Includes all of the operation and maintenance activities through the first month of operation including the first monthly inspection and Engineering Baseline Testing. This line item includes costs for all personnel required for system startup. The system must be fully operational before it will be considered complete. Peripheral items such as telemetry phone lines, hold down straps, extended exhaust stacks, etc. must all be completed before KDHE will sign off on as a successful system startup.

6.70 **SYSTEM WELL LOCATION MAP-** A minimum of one map is required in the FRR and each QMR that illustrates all the system remedial wells on site. This map is also to include routing of plumbing lines from the equipment enclosure to each well.

6.71 **TELEPHONE LINE HOOKUPS**- This procedure should be followed for proper installation of telephone lines used for telemetry systems. KDHE must have the following information:

1) Site name and site code.
2) Site address where unit is located. (city and street number)
3) Accurate description of the trailer/building location on the site property.
4) Location of the control panel on the trailer/building.
5) Does the installation require a phone jack inside the control panel?
6) Name and phone number of an on-site contact person who is available during normal working hours and knows where the phone line is to be installed. (This is usually the O/O or their on-site representative).
7) Any special instructions the telephone company may need to complete the installation.

Fax or e-mail (preferred) the above information to David Caldwell at: fax 785-296-0624 or email to dcaldwel@kdhe.state.ks.us. Please allow at least ten (10) working days for the installation to be completed.

6.72 **TRENCHING BACKFILL**- All plumbing lines will be imbedded in sand backfill with a minimum of 6 inches below the pipes. Sand will also be placed in two 6 inch layers above the pipes totaling a minimum of 12 inches. The sand backfill shall be compacted with a mechanical compactor capable of compacting the sand backfill to a minimum of 95% of the maximum standard Proctor density. After the pipes have been embedded and compacted, the remainder of the excavation shall be backfilled using either sand, river gravel, crushed rock, or native soil. The remaining backfill shall be compacted as per stated above. Flowable fill is an acceptable substitute as a trench backfill material. The substitution must be consulted with the KDHE P.M. during the Engineering Review period.

6.73 **VENDOR-** This is any person (individual, partnership, association or corporation) who is seeking or is chosen to enter into a procurement contract with the O/O.

6.74 **WATER SAMPLES**- This item shall include the total cost associated with the laboratory analysis of water samples collected (i.e. analytical costs, shipping, etc.). All samples shall be analyzed in accordance with the criteria provided in this document for the constituents outlined in the bid sheet. Provide the per sample cost for analysis of each constituent as required. Bids should reflect sample collection labor separate from the analytical costs. Mobilization costs will be divided into two line items: one for vehicle mileage (mileage rate X miles bid per event) and one for each Technician travel time (hourly rate). On site Technician time will be divided into time for QRM system operations and time for water sample collection labor. Sample collection labor will be pro-rated on a labor per sample basis. A well gauging rate will be provided for the gauging dry wells and wells with free phase product. The contractor must include funds for replacing bailers, rope, or other supplies for wells or be expected to replace them as needed. The Chain of Custody for each sampling event is required to be submitted with corresponding RFR's.

6.75 **WASTE WATER**- This item shall include all labor, equipment, and supply costs that are necessary to handle, treat (i.e air stripping, carbon, etc.) and dispose of waste water generated during sampling activities. This only applies to waste water that requires treatment prior to

discharge. **All applied methods must comply with local, state, and federal laws.**

6.76 **WELL COMPLETION**- This item shall include the cost for a well pad, flush or stick up protective locking cover, well development, and well tagging for all SVE wells, monitoring wells, and recovery well(s). All wells must be completed in accordance with regulations and KDHE guidelines. All wells must be developed to the extent that each well can be fully used for their intended purpose. This cost shall be bid on a per well basis.

6.77 **WELL PLUGGING**- This item shall include all labor, equipment, and materials necessary to plug wells, sizes specified per line item, in accordance with KAR 28-30-7(d) included as ATTACHMENT B. This item will be reimbursed on the actual footage plugged. The numbers provided are for determining the low bid.

6.78 **WELL REPORTING**- All wells that are associated with the site that have been plugged or are not approved to be sampled should be listed noting the current status of the well. A summary of abbreviations for well designations other than "MW" should be noted if applicable.

6.79 **WELLS**- This item shall include the cost for the blank well casing and screen, annular space gravel pack, annular seal, and grout for all SVE wells and recovery well(s). Do not include well head completion and mobilization in this category. This cost shall be bid on a per foot basis and if additional wells are required, reimbursement will be based on this per foot cost. KDHE will not reimburse for improperly constructed wells or wells which cannot be used for their intended purpose.

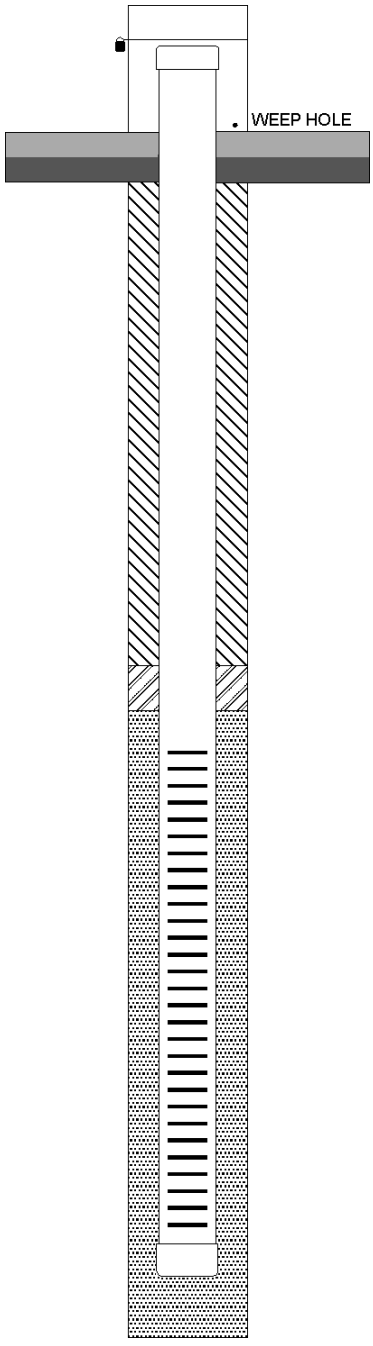
ATTACHMENT A

KDHE MONITORING WELL DESIGN

STANDARD MONITORING WELL DESIGN

WELL HEAD PROTECTOR
Steel or PVC cover with water tight cap, set in the concrete pad. Should be equipped with a locking device to prevent tampering. Cover should provide adequate space to allow access to the well.

CONCRETE PAD
Should be a minimum of 2'x2'x4" thick to secure the protective cover, prevent pooling of water and vegetative growth around the well, and allow for placement of a surveyor pin.



IMPERVIOUS GROUT
The upper 20' of the well must be grouted with impervious grout as required by K.A.R. 28-30-2k and 6b (see next page for quotes)

SCREEN SEAL
A 2' layer of bentonite chips or pellets should be placed on the gravel pack to prevent infiltration of grout into the gravel pack.

GRAVEL PACK
The gravel pack should be sized to prevent infiltration of fines into the well. The source of the gravel pack material should be carefully determined to eliminate the possibility of contamination of the well during construction.

WELL CASING
Well casing shall terminate not less than one foot above ground surface. The following well casings are acceptable for monitoring well use.
2" I.D. PVC schedule 40 or thicker
4" I.D. PVC SDR 26 or thicker
5" I.D. PVC SDR 26 or thicker
Steel casing shall be 10 gauge or thicker

All casing materials must be connected without use of solvents, glues, or materials which would induce contamination into the well.
Some other casings are approved for well construction but are not as commonly used. All casing materials must be selected so that incompatibility problems do not occur.

SCREEN
Wells must be equipped with manufactured well screen which provides adequate communication with the aquifer to provide a representative sample without allowing the sediments to enter the well.

CONTRACTOR LICENSING
All monitoring wells must be constructed by a licensed water well contractor as specified under K.A.R. 28-30-3. (See next page for quotes)

K.A.R. 28-30-2 (k) Grout

Grout means cement grout, neat cement grout, bentonite clay grout or other material approved by the department used to create a permanent impervious watertight bond between the casing and the undisturbed formation surrounding the casing or between two or more strings of casing.

(1) "Neat cement grout" means a mixture consisting of one 94 # bag of portland cement to 5-6 gallons of clean water.

(2) "Cement grout" means a mixture consisting of one 94 # bag of portland cement to an equal volume of sand having a diameter no larger than 0.080 inches (2 millimeters) to 5-6 gallons of clean water.

(3) "Bentonite clay grout" means a mixture consisting of water and comercial grouting or plugging sodium bentonite clay containing high solids such as that manufactured under the trade name of "volclay grout", or an equivalent as approved by the department.

(A) The mixture shall be as per the manufacturer's recommendations to achieve a weight of not less than 9.4 pounds per gallon of mix. Weighing agents may be added as per the manufacturer's recommendations.

(B) Sodium bentonite Pellets, tablets or granular sodium bentonite may also be used provided they meet the specifications listed in K.A.R. 28-30-2(k), (3), above.

(C) Sodium bentonite products that contain low solids, are designed for drilling purposes or that contain organic polymers shall not be used.

K.A.R. 28-30-6 (b) Grouting

(1) Constructed or reconstructed wells shall be sealed by grouting the annular space between the casing and the well bore from ground level to a minimum of 20 feet or to a minimum of five feet into the first clay or shale layer, if present, whichever is greater. If a pitless well adapter or unit is being installed, the grouting shall start below the junction of the pitless well adapter or unit where it attaaches to the well casing and shall continue a minimum of 20 feet below this junction or to a minimum of five feet into the first clay or shale layer whichever is greater.

(2) To facilitate grouting, the grouted interval of the well bore shall be drilled to a minimum diameter at least three inches greater than the maximum outside diameter of the well casing. If a pitless well adapter or unit is being installed on the well's casing, the well bore shall be a minimum diameter of at least three inches greater than the junction diameter of the well casing through the grouted interval below the junction of the pitless well adapter or unit where it attaches to the well casing.

(c) If groundwater is encountered at a depth less than the minimum grouting requirement, the grouting requirement may be modified to meet local conditions if approved by the department.

K.A.R. 28-30-3 Licensing

(a) Eligibility. To be eligible for a water well contractor's license an applicant shall:

(1) Have passed an examination conducted by the department; or

(2) Meet the conditions contained in subsection (c).

(b) Application fees.

(1) Each application shall be accompanied by an application fee of $ 10.00.

(2) Before issuance of a water well contractor's license, each contractor shall pay a license fee of $ 100.00 plus $ 25.00 for each drill rig operated by or for the contractor. These fees shall accompany the application and shall be by bank draft, check or money order payable to the Kansas Departmetnt of Health and Environment- water well lincensure.

(c) Reciprocity.

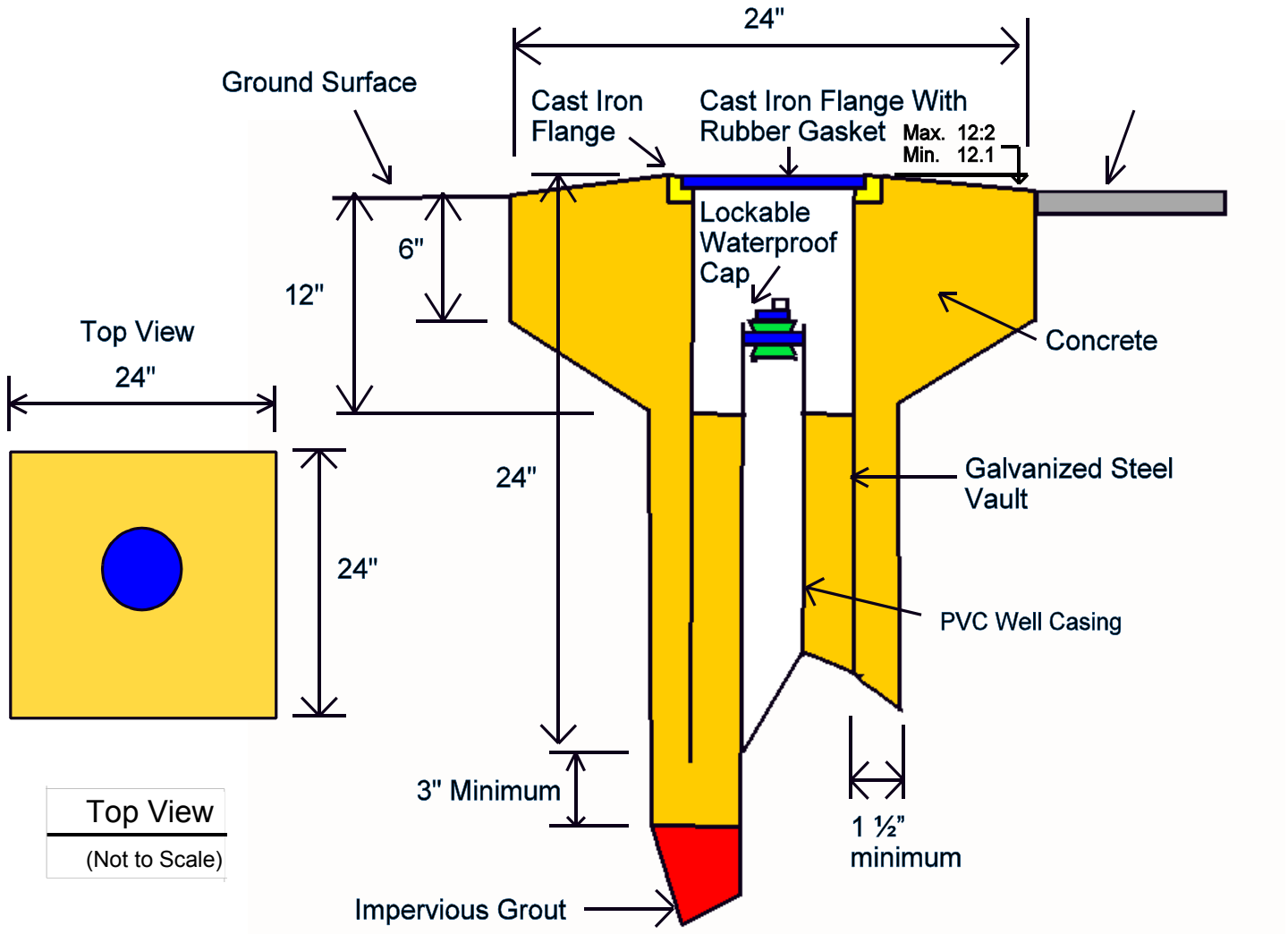
(1) Upon receipt of an application and payment of the required fees from a nonresident, the secretary may issue a license, providing the nonresident holds a valid license from another state and meets the minimum requirements for licensing as prescribed in K.S.A. 82a-1207, and any amendments thereto.

(2) If the nonresident applicant is incorporated, evidence shall be submitted to the Department of Health and Environment showing that the applicant meets the registration requirements of Kansas Secratary of State.

(3) Nonresident fees for a license shall be equal to the fee charged a Kansas contractor by the applicant's state of residence but shall not be less than $ 100.00. The application fee and drill rig license fee shall be the same as the Kansas resident fees.

FLUSH-MOUNT WELL CONSTRUCTION DETAIL

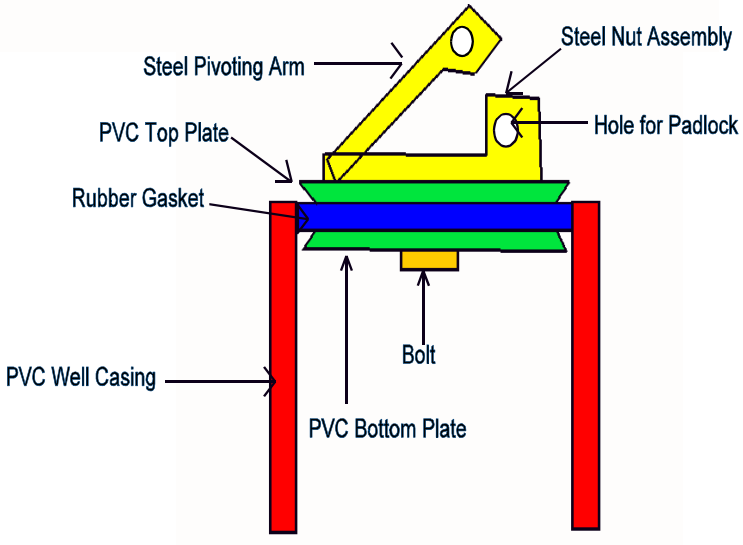
(Not to Scale)



Top View

(Not to Scale)

Casing	2"	4"
Vault	6"	9"
Concrete Pad	24" x 24"	24" x 24"



LOCKABLE WATERPROOF CAP

(Not to Scale)

Sept. 10, 1993

MONITORING WELL DESIGN
ADDITIONAL INSTRUCTIONS

FLUSH-MOUNT WELL HEAD COMPLETION:

K.A.R. 28-30-6 (e) does not allow well casing to be terminated less than one foot above finished ground surface. Because storage tank site investigations are often conducted in areas where completing monitoring well heads above grade is not practical, consideration must be given to completing flush-mount monitoring well heads.

If monitoring well must be completed with a flush-mount well head design, a waiver of K.A.R. 28-30-6 (e) must be requested in writing. The procedures for requesting a waiver of this regulation are described as follows:

1) Prior to the monitoring well installation, the written request must be submitted to the address indicated below.

2) The request must contain the following information:

   a. facility name and street address
   b. legal description of the property where the wells are proposed to be located.
   c. number of wells to be installed with flush-mount well heads
   d. reason(s) why the regulation should be waived
   e. approximate depth to groundwater in the local area
   f. the general geology or lithologies expected to be encountered in drilling
   g. specifications and/or diagrams of the vault proposed to be installed including the manufacturer's name and any other descriptive information such as a manufacturer's trade sheet.

3) Wait for approval of the waiver request before completing monitoring wells.

4) When waivers are approved and monitoring wells are installed with a flush-mount wellhead design, the well head completion must be indicated accordingly in the lithologic section of the WWC-5 water well record form. The name of the KDHE contact person that approved the waiver must also be provided in the lithologic section of the WWC-5 form.

Any waiver of regulations applies only to the wells and information indicated in the written request. A verbal request for waiver of regulations may be approved on any additional wells needed for the same area or site. The verbal request must be directed to the phone number below.

MONITORING WELL GROUTING REQUIREMENTS:

K.A.R. 28-30-6, part (b) requires that constructed or reconstructed wells be sealed by grouting the annular space between the casing and the well bore from ground level to a minimum of 20 feet or to a minimum of five feet into the first clay layer, whichever is greater. Part (c) of the same regulation specifies if groundwater is encountered at a depth less than the minimum grouting requirement, the grouting requirement may be modified to meet local conditions if approved by the department.

If modifications to the grouping requirements are necessary solely because of shallow groundwater, a waiver or the regulations is not needed.; however, the reason for modifying the grouping requirements must be indicated accordingly on the WWC-5 water well record form. In situations where grouping modifications are required for reasons other than shallow groundwater, a waiver of K.A.R. 28-30-6(b) must be obtained following the same procedures as described for flush-mount well heads above.

Submit requests for waivers and direct any questions on well design regulations to:

Kansas Department of Health & Environment
Bureau of Water, Geology Section
1000 SW Jackson, Suite 420
Topeka, Kansas 66612-1367
Phone: (785)296-5522

ATTACHMENT B

SOIL BORING PLUGGING CRITERIA

K.A.R. 28-30-7(d)

ARTICLE 30 - WATER WELL CONTRACTORS LICENSE; WATER WELL CONSTRUCTION AND ABANDONMENT

This article regulates the construction, reconstruction, treatment and plugging of water wells and sets forth procedures for the licensing of water well contractors as required by K.A.S. 82a-1201 to 82a-1215 and amendments thereto.

28-30-7 Plugging of abandoned wells, cased and uncased test holes.

(d) Plugging of abandoned holes. If the hole penetrates an aquifer containing water with more than 1,000 mg/l, total dissolved solids or is in an area determined by the department to be contaminated, the entire hole shall be plugged with an approved grouting material from the bottom of the hole, up to within three feet of the ground surface using a grout tremie pipe or similar method. From three feet below ground surface to ground surface the plugged hole shall be covered over with compacted surface silts or clays; otherwise, the hole shall be plugged in accordance with the following paragraphs.

(1) Plugging of abandoned cased test holes. The casing shall be removed if possible and the abandoned test hole shall be plugged with an approved grouting material from the bottom of the hole, up to within three feet of the ground surface, using a grout tremie pipe or similar method. From three feet below ground surface to ground surface the hole shall be covered over with compacted surface silts or clays. If the casing cannot be removed, in addition to plugging the hole with an approved grouting material the annular space shall also be grouted as described in K.A.R. 28-30-6 or as approved by the department.

(2) Abandoned uncased test holes, exploratory holes or any bore holes except seismic or oil field related exploratory and services holes regulated by the Kansas Corporation Commission under K.A.R. 82-3-115 through 82-3-117. A test hole or bore hole drilled, bored, cored, or augered shall be considered an abandoned hole immediately after the completion of all testing, sampling or other operations for which the hole was originally intended. The agency or contractor in charge of the exploratory or other operations for which the hole was originally intended is responsible for plugging the abandoned hole using the following applicable method, within three calendar days after the termination of testing or other operations.

(A) The entire hole shall be plugged with an approved grouting material from bottom of the hole, up to within three feet of the ground surface, using a grout tremie pipe or similar method.

(B) From three feet below ground surface to ground surface the plugged hole shall be covered over with compacted surface silts or clays.

(C) For bore holes of 25 feet or less, drill cuttings from the original hole may be used to plug the hole in lieu of grouting material, provided that an aquifer is not penetrated or the bore hole is not drilled in an area determined by the department to be a contaminated area.

WELL PLUGGING/ABANDONMENT REQUIREMENTS

The following requirements supplement section 28-30-7 (d) (1) of article 30 - Water Well Contractor's License: Water Well Construction and Abandonment, located on page 1 of Attachment B.

A) The following requirements will be mandatory for plugging monitoring wells that have **20 feet or greater of grout (including the bentonite plug)**:

1) The well head, concrete pad and protective cover (if above grade completion) must be removed.

2) The casing must be removed if possible. The well must then be filled with an approved plugging material. After the casing or casing void has been filled with an approved plugging material, the casing (if still in place) will be cut off to a level three (3) feet below ground surface. The remaining excavation may then be backfilled with native soils.

3) The property will be restored as near to the original condition subsequent to plugging.

B) The following requirements will be mandatory for plugging monitoring wells that have **less than 20 feet of grout (including bentonite plug)**:

1) The well head, concrete pad and protective cover (if above grade completion) must be removed.

2) Unless otherwise specified in the Site Specific (SSI) in Exhibit 1, the well must be drilled out to a minimum of twenty (20) feet or total depth, whichever is less. Over drilling must be performed using an augur with a minimum diameter equal to the original diameter of the soil boring.

3) The casing (if still present) must be removed and the boring filled with an approved plugging material to a level of three (3) feet below ground surface. The remaining excavation may then be backfilled with native soils.

4) The property will be restored as near to the original condition subsequent to plugging.

ATTACHMENT C
LABORATORY METHODS

APPROVED ANALYTICAL METHODS FOR ORGANIC COMPOUNDS

ANALYTE	SOLID AND HAZARDOUS WASTE METHODS		WATER METHODS	
	No.	PARAMETER	No.	PARAMETER
Benzene	8020*	Aromatic Volatile Organics	502.2	Volatile Org. Cmp., Purgeable Org. Cmp.
	8021*	Halogenated and Aromatic Volatiles	503.1	Volatile Aromatic & Unsat. Organic Cmp.
	8240	Volatiles	524.1	Purgeable Organic Compounds
	8260	Volatiles	524.2	Purgeable Organic Compounds
			602	Purgeable Aromatics
			624	Purgeables
			1624	Volatile Organic Compounds
BTEX	8020*	Aromatic Volatile Organics	502.2	Volatile Org. Cmp., Purgeable Org. Cmp.
	8021*	Halogenated and Aromatic Volatiles	503.1	Volatile Aromatic & Unsat. Organic Cmp.
	8240	Volatiles	524.1	Purgeable Organic Compounds
	8260	Volatiles	524	Purgeable Organic Compounds
1,2-DCA	8010*	Halogenated Volatile Organics	502.1	Volatile Halogenated Organic Compounds
	8021*	Haloginated and Aromatic Volatiles	502.2	Volatile Org. Cmp., Purgeable Org. Cmp.
	8240	Volatiles	504.1	Microextraction and GC
	8260	Volatiles	524.1	Purgeable Organic Compounds
	8261	Vaccum Distillation in Combination with GC/MS	524.2	Purgeable Organic Compounds
			601	Halogenated Volatile Organics
			624	Purgeables
			1624	Volatile Organic Compounds
Ethylbenzene	8020*	Aromatic Volatile Organics	502.2	Volatile Org. Cmp., Purgeable Org. Cmp.
	8021*	Haloginated and Aromatic Volatiles	503.1	Volatile Aromatic & Unsat. Organic Cmp.
	8240	Volatiles	524.1	Purgeable Organic Compounds
	8260	Volatiles	524.2	Purgeable Organic Compounds
			602	Purgeable Aromatics
			624	Purgeables
			1624	Volatile Organic Compounds
MtBE	8020*	Aromatic Volatile Organics	503.1	Volatile Aromatic & Unsat. Organic Cmp.
	8240*	Halogenated and Aromatic Volatiles		
	8260	Volatiles		
Naphthalene	8021*	Halogenated and Aromatic Volatiles	502.2	Volatile Org. Cmp., Purgeable Org. Cmp.
	8100	Polynuclear Aromatic Hydrocarbons	503.1	Volatile Aromatic & Unsat. Organic Cmp.
	8250	Semivolatile Organic Compounds	524.2	Purgeable Organic Compounds
	8270	Semivolatile Organic Compounds	550	Polycyclic Aromatic Hydrocarbons
	8310	Polynuclear Aromatic Hydrocarbons	550.1	Polycyclic Aromatic Hydrocarbons
	8260	Volatiles	610	Polynuclear Aromatic Hydrocarbons
			625	Base/Neutrals & Acids
			1625	Semivolatile Organic Compounds
Toluene	8020*	Aromatic Volatile Organics	502.2	Volatile Org. Cmp., Purgeable Org. Cmp.
	8021*	Halogenated and Aromatic Volatiles	503.1	Volatile Aromatic & Unsat. Organic Cmp.
	8240	Volatiles	524.1	Purgeable Organic Compounds
	8260	Volatiles	524.2	Purgeable Organic Compounds
			602	Purgeable Aromatics
			624	Purgeables
			1624	Volatile Organic Compounds

APPROVED ANALYTICAL METHODS FOR ORGANIC COMPOUNDS

ANALYTE	SOLID AND HAZARDOUS WASTE METHODS		WATER METHODS	
	No.	PARAMETER	No.	PARAMETER
Xylene	8020*	Aromatic Volatile Organics	502.2	Volatile Org. Cmp., Purgeable Org. Cmp.
	8021*	Halogenated and Aromatic Volatiles	503.1	Volatile Aromatic & Unsat. Organic Cmp.
	8240	Volatiles	524.1	Purgeable Organic Compounds
	8260	Volatiles	524.2	Purgeable Organic Compounds
EDB	8260	Volatiles	504.1	Microextraction and GC
	8011	Micorextraction and GC with Electron Capture	555.1	Liquid-Liquid Extraction and GC with Electron Capture
	8021B	GC using Photoionization and/or Electrolytic Conductivity Detectors		
Polynuclear Aromatic Hydrocarbons	8310	Polynuclear Aromatic Hydrocarbons	610	Polynuclear Aromatic Hydrocarbons (High performance Liquid Chromatography)
	8270C	Semi Organic Compounds by GC/MS, Cap Column		
Lead	7420	AA Direct Aspiration	239.2	Atomic Absorption Spectrometry (Graphite Furnace)
	7421	Atomic Absorption, Furnace Technique	200.8	Inductively Coupled Plasma Mass Spectrometry
			200.9	Atomic Absorption Spectrometry-Stabalized Temperature (Graphite Furnace) Method

* Water samples must be prepared using method 5030 (purge & trap extraction) if this test method is used.

Air Sample Analysis:

40 CFR Ch. 1 (7-1-91 Edition) Part 60, Appendix A, Method 18 (Flexable Bag Procedure)

rev 8, 1/05

ATTACHMENT D

KDHE WELL TAGGING PROCEDURE

ADDITIONAL INSTRUCTIONS FOR THE SITE IDENTIFICATION FORM

A State of Kansas Site I.D. record must be developed for all wells installed or/and monitored at Leaking Underground/Aboveground Storage Tank sites (including existing private or public wells). The Site I.D. record is used to uniquely identify individual sampling points at LUST/LAST (and other) projects for use in the State of Kansas' computerized data systems. To establish a Site I.D. record, a Site I.D. form must be completed and the identically numbered tag must be permanently affixed to the well, then the form is returned to KDHE. Specific instructions (and exceptions) for completing the Site I.D. form and affixing the tag are described below.

Part 1: State of Kansas Site I.D. Form

The instructions for completing the Site I.D. form are provided in detail on the reverse side of the form itself. Please note the following additional information:

A) Each Site I.D. form is uniquely numbered and has an identically numbered Site I.D. tag attached to it. For this reason, DO NOT INTERCHANGE TAGS AND FORMS.

B) A separate Site I.D. form must be completed for each monitoring well installed and each private or public well sampled. If and existing well has already been tagged (and the tag is readable), do not tag the well again. Also see the "Caution" statement in the tag installation notes on affixing tags to existing wells.

C) No two Site I.D. numbers are the same. EACH MONITORING WELL INSTALLED MUST HAVE A UNIQUE SITE I.D. TAG ATTACHED, additionally, GROUPS OF WELLS MAY BE ASSIGNED THE SAME PROJECT CODE.

D) Please write the Site I.D. number in the upper margin near the right edge of the Water Well Record form (form WWC-5) for each monitoring well installed at a LUST/LAST site.

Specific directions for topics not addressed by the instructions on the Site I.D. form are listed below (refer to the attached example Site I.D. form completed for the third monitoring well installed at a hypothetical LUST site.

Item c: The person/company/entity responsible for plugging the well being tagged, should be placed in this field (if no responsible party is designated, this will often be the State of Kansas, but not always). It is possible that the property/facility owner name of each well tagged at a given project site could be the same, or it could be different for all (or only some) of the wells.

Item i: This item should be completed after conducting a legal survey as specified in the original scope of work. All location information for each monitoring well should be obtained from the survey data (e.g. legal description, distance from the southeast corner of the section, etc).

Item k: After entering the name of the individual who conducted the survey, enter "NA" "NA" in item kk. In item "y" (Comments), put the name of the company the registered land surveyor works for (see attached example Site I.D. form).

Item p: Enter the name of the individual who completed the Site I.D. form in item (p), enter "NA" "NA" in item (pp). In item "y" (Comments), put the name of the company the person in item (p) is working for (see attached example Site I.D. form).

Item r: The program code for Trust Fund sites is "ET", for LUST sites, it is "EL". The letters must be circled as shown on the example Site I.D. form. That information will be provided in the scope of work for the site.

Item s: Enter the KDHE project code assigned to the site (that information will be provided in the scope of work for the site).

The remainder of the Site I.D. form must be accurately completed by the contractor's project manager, geologist, or engineer primarily responsible for managing the site investigation. The form must be completed according to the instructions herein, and those on the back of the Site I.D. form, and as demonstrated on the attached example Site I.D. form. Failure to submit the forms or submitting inaccurate data could restrict or delay reimbursement for work completed. The forms must be completed and submitted to the address below within two weeks after tagging the well. Copies of the Site I.D. forms must be included in the appropriate appendix of the final report. Any unused Site I.D. forms must be returned to the address below.

Kansas Department of Health & Environment
Office of Information Systems
Systems Management Section (GIS Center)
1000 SW Jackson, Suite 010
Topeka, Kansas 66612-1311

Part II: Affixing the Tag to a Well

The uniquely numbered tag to be permanently affixed to a well will be found attached to the corresponding Site I.D. form. DO NOT INTERCHANGE TAGS AND FORMS.

The tag is made of aluminum and measures approximately 2.5 X 0.75 X 0.02 inches. It can be easily molded to the shape of the surface to which it will be affixed. The method of installing the tag will depend on how a well head was completed. Note the tags are provided, however, installation hardware must be supplied by the contractor. Acceptable methods of tag installation are discussed as follows:

1) Above-grade well head completion: For monitoring wells that have casing terminating above grade with exterior steel or PVC well head protector (standard monitoring well design), the Site I.D. tag is to be installed on the exterior of the protective cover approximately 3.0 inches below the hasp used in locking the protective cover cap. The tag must be secured to the protective cover by means of two one-way metal screws or pop-rivets. Do not use adhesives to affix the tag to the protective cover.

2) Flush-mounted monitoring well heads: Since flush-mount manholes vary in design, there is not an entirely standard method for affixing the well tag, but, the tag must be installed inside the manhole in an area and manner leaving the tag readily visible and accessible. The tag may be affixed to the inside of the manhole cover or anchored by some means to the concrete inside the manhole. Do not use adhesives to affix the tag.

3) Private or public wells: The method for affixing a tag to a private or public water well must be determined according to the specific well head design, which will vary. Keep in mind the tag must remain visible and accessible after it is permanently affixed to the well. Common methods of affixing tags to these types of wells are anchoring the tag to the concrete pad at the base of the well, attaching the tag to the well house, or wiring the tag to the well casing. Remember to obtain permission prior to sampling or tagging private or public wells.

Notes on tag installation:

CAUTION! State regulations prohibit perforation of a well casing. See K.A.R. 28-30-6(e) as stated below.

K.A.R. 28-30-6(e) provides in part: "...No opening shall be made through the well casing except for the installation of a pitless adapter so designed and fabricated to prevent soil, subsurface and surface water from entering the well."

A. Remember, the tag must be visible and must remain permanently affixed to the well sampled as part of the investigation. Copies of photographs depicting acceptable methods of tag installation have been attached.

B. When affixing a tag to any well that does not have a protective casing installed, state regulations will not allow any holes to be drilled into an existing well casing. An alternative method for affixing the tag must be used.

C. Prior to sampling or tagging any private or public water supply well, specific permission must be obtained form the appropriate authority.

D. If there are any questions on installing the tag or completing the Site I.D. form, contact KDHE at (785)296-6282.

Amended Report ☐

State Of Kansas

Site I.D. Form

a. County: **b. Site I.D. number:**

c. Owner Name:

d. Owner Address: **City** **State** **Zip Code**

e. This site is located at (66 Characters max.)

f. Encoded Owner Name: ☐☐☐☐☐☐☐☐☐☐☐ **g. Well (site) Number:** ☐☐☐

h. Encoding Scheme (Circle only one number):

1. **If city owned**, enter the first eleven letters of the city name (leave a blank space between words if more than one word is used).
2. **If County owned**, enter the first eleven letters of the county name ("Pottawatomi", for Pottawatomie) or abbreviate when it is necessary to show the type of site ("AL San Lndf", for Allen County Sanitary Landfill).
3. **If business owned**, print the first eleven letters of the business name (include RWDs, e.g., SN RWD1, for Shawnee Co. RWD 1).
4. **If owned by an individual**, print the first eight letters of the last name, a comma, and the first two letters of the first name.
5. **If none of the above apply**, encode the owner name in the most meaningful manner possible, and explain the procedure in item y.

i. This well (site) is in Sec. ____ , Twn. ____ , Rng. ____ (circle one) E / W. From the (circle one) NE / SW / SE / NW corner of this section, this site is _____ ft (circle one) N / S and _____ ft (circle one) E / W , and is in the____ 1/4 of the ____ 1/4 of the ____ 1/4 of the ____ 1/4.

J. Measurement Method Used (circle only one number):

1. Legal Survey 2. Absolute Survey 3. GPS Survey 4. Technical Survey 5. Compass & Chain
6. Hand Wheel 7. USGS 7.5 Topomap 8. County Road Map 9. Other: _____

k. Measured By; _____ (last name) , _____ (first init.) **of (kk.)** _____ (abbreviate) **(Agency)** _____ (abbreviate) **(Bureau)**

l. The tag is attached to the , (ll.) using

m. Water Source (Circle only one number):

1. Well 2. Spring 3. Pit 4. Lake / Pond 5. Stream / River
6. Ditch / Canal 7. Storm Runoff 8. Treated Water (Distribution System) 9. Waste Water

n. Use(s) of Water (Circle all that apply):

1. Domestic 2. Irrigation 3. Feedlot 4. Industrial 5. Public Water Supply
6. Oilfield Water Supply 7. Lawn and Garden Only 8. Air Conditioning 9. Dewatering 10. Monitoring Well Only
11. Injection Well 12. Artificial Recharge 13. Recreation 14. Other (Specify): _____

o. Type of Casing (Circle only one number):

1. Steel 2. PVC 3. RMP (SR) 4. ABS 5. Wrought Iron
6. Asbestos Cement 7. Fiberglass 8. Concrete Tile 9. Other (Specify, or print "UNK" if unknown): _____

p. Form Completed By: _____ (last name) , _____ (first init.) **of (pp.)** _____ (abbreviate) **(Agency)** _____ (abbreviate) **(Bureau)**

q. Your Work Phone Number: (_____) - _____ - _____ **qq. Date:** _____ (MM) - _____ (DD) - _____ (YYYY)
Area Code Prefix Number

r. Program Code:

EP ER EE EU EL ET EJ SC SG SN SW SE SP FK LM ES AR KC
PU PC PT PE PD PV PI WI WE PP HL HD HF HS WC RP GS US

s. Project Code: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

t. Optional "Well Number Codes": Consultant Code ___ , and / or (**S**)hallow, (**I**)ntermediate, or (**D**)eep ___ .

u. Well Depth (TOC to TD):____.____ ft. **v. TOC is** _____.____ ft above / below ground elevation. **w. TOC Elevation**____.____

x. DWR File Number: _____ **xx. Is this a replacement well?** (circle one) YES / NO

y. Comments: _____

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AFTER YOU HAVE COMPLETED THIS FORM, PHOTO-COPY IT AND KEEP THE COPY FOR YOUR FILES. SEND THE ORIGINAL TO THE KANSAS DEPARTMENT OF HEALTH & ENVIRONMENT, OFFICE of INFORMATION SYSTEMS, SYSTEMS MANAGEMENT SECTION at Forbes Field (Bldg 740), Topeka, Ks. 66620.

Complete this form legibly using a soft lead pencil. PLEASE DO NOT USE INK (a typewriter may be used).NOTE : ALL OF THIS FORM SHOULD BE COMPLETED IF THE INFORMATION CAN BE REASONABLY ACQUIRED.

Check the amended report box only when amending an existing report.

a. Write the full name of the county this site is in, do not abbreviate or use numbers.

b. Copy the Site I.D. number from the tag when the Amended Report box is marked (first time applications will always have the Site I.D. number pre-printed on the form).

c. Write the name of the entity that owns this site (example: City of Attica). If this site (a river for example) doesn't have an owner, then use the entity name (example: Walnut River). 32 characters maximum may be used.

d. Write the owner address.

e. Write the street address where this well (site) is located. If the street address is unknown (or if the well/site is in a rural area), write the name of the nearest marked intersection and it's distance and direction from the well, then write the name of the nearest town. Do notwrite more than 60 characters.

f. Code the owner name using one of the five encoding schemes listed in Item h.

g. Write a three digit numerical well (site) number (use leading zeros when necessary). Do not use alpha characters (letters).

h. Circle the number that represents the coding scheme used in Item f.

i. Write the section, township, range, and circle either "E", or "W". Circle the section corner that measurements were made from, then write the number of feet (and circle the appropriate direction) for both required footage measurements. Write the 1/4 section descriptions(they can be calculated after measuring the section perimeter on a Topo Map). NOTE : COMPLETE THIS ITEM EVEN IF A GPS SURVEY IS PERFORMED.

j. Circle the number that represents the method most accurately describing how you calculated the footages given above.

1.Legal Survey = a survey performed and certified by a licensed surveyor.

2.Absolute Survey = the same as a legal survey except that an unlicensed person performed the survey.

3.GPS Survey = a survey made using satellite receivers to calculate latitude and longitude which will be added to this record later.

4.Technical Survey = measurements made using the same instruments that a legal survey would use, but utilizing perceived section lines instead of actually locating the section corner pin.

5.Compass and Chain = measurements made using these tools and perceived section lines.

6.Hand Wheel = see compass and chain.

7.USGS 7.5' Topo Map = Plot site on a 7.5' quadrangle map, measure the map scale, and convert to footage.

8.County Road Map = Plot site on a county road map, measure the map scale, and convert to footage.

9.Other = specify and explain any other method used (use comment section if more space is needed).

k. Write the last name, then the first initial, of the person who performed the survey.

kk. Write the agency name (abbreviated to 2 letters), then the bureau name (abbreviated to 4 or fewer letters), for the employer of the personindicated in Item k.NOTE : IF THIS SURVEY WAS PERFORMED BY A LICENSED WELL DRILLER OR HIS EMPLOYEE, LEAVE THE BUREAU NAME BLANK AND PUT THE WELL DRILLER'S LICENSE NUMBER IN THE AGENCY NAME FIELD.

l. Briefly describe where the tag is located, and (ll.) the fasteners used to attach it there.

m. Circle the number (only one number) that represents the best description of the source of this water.

n. Circle the number(s) that represent(s) the best general description(s) of the use of the water from this site.

o. Circle the number (only one number) that represents the best description of the type of casing that is in this well (if "Well" is the source).If the casing type is unknown, circle option number 9 and write "UNK" on the blank line.

p. Write the last name, then the first initial of the person who completed the blanks on this form.

pp. Follow the instructions given for Item kk.

q. Write the work phone number for the person who completed this form.

qq. Write the date the well (site) was tagged (use numbers, e.g. 06-09-91).

r. Circle the code that represents the program for whom you are visiting this well (site). NOTE : Contact your database administrator if a needed code is not on this list, DO NOT INVENT DIFFERENT CODES. The program codes are as follows :

Environmental Remediation (BER)
Science & Support (OSS)
Bureau of Water (BOW)
Waste Management (BWM)
EP=Pre-Remedial Projects
SC=Stream Monitoring Network
PU=Public Water Supply (PWS)
HL=Sanitary Landfills
ER=Remediation Sites
SG=Groundwater Network
PC=Chlorinated PWS
HD=Hazardous Waste Sites EE=Environment
Emergency (spills)
SN=Nonpoint Pollution

PT=PWS Test Sources
HF=Furley / Nies Project
EU="UST" Sites
SW=Wasteload Allocation
PE=PWS Point of Entry
HS=Special Projects
EL="LUST" Sites
SE=Effluent Monitoring
PD=PWS Distribution Systems
ET=Trust Fund Sites
SP=Special Projects
PV=Private Water Supply Source
Air and Radiation (BAR)
EJ=Joint or Special Projects

FK=Pollution (fish kill, spill, etc.)
PI=Underground Brine Injection
WC=Wolf Creek Project
LM=Lake Monitoring Network
WI=Waste Influent
RP=Special Projects
ES=Sanitarian Program
WE=Waste Effluent
Other Agencies Programs
PP=Pre-Treatment Program

AR=DWR Appropriation Rights
KC=Ks. Corporation Commission
GS=Ks. Geological Survey
US=U.S. Geological Survey

s. Write the existing program specific project code (eg. an alias) for this well (site) if known. If an alias has not been assigned to this site,and one should be developed, write the proposed alias. Information about "How to build the alias" should be centrally coordinated, so consult your section representative for more information on "what to enter", BEFORE MAKING AN ENTRY. These codes are for program staff use only and should not be used outside of the program area for which they are designed.

t. THIS FIELD IS OPTIONAL. Use it to provide the well number with supplemental significance. Example : Monitoring well number 001 can be coded (using this field) to show: it was installed by consultant "X" (write x in the first blank), and, it is a deep well (write D in thelast blank). The computer system will show that this is monitoring well number X001D.

u. THIS FIELD IS OPTIONAL. Write the well depth (can be reported to one 1/100 of a foot).

v. THIS FIELD IS OPTIONAL. Write the number of feet (can be reported to one 1/100 of a foot) that the casing extends above or below (circle one) ground level.

w. THIS FIELD IS OPTIONAL. Write the elevation to the top of the casing (can be reported to one 1/100 of a foot).

x. Write the Board of Agriculture, Division Of Water Resources, Application number, or, enter "UNK" if unknown, or "NONE" if you know that a DWR appropriation number does not exist.

xx. Circle either yes, or no, to indicate if this is a replacement well.

y. Give a general description of this site and its location. Describe any unique aspects of this site (such as the structure of the well house). Site descriptive statements that might enable another person to more easily locate or recognize this site, should be included in this field.

DO NOT INCLUDE SAMPLE ANALYSIS INFORMATION IN THIS FIELD! The laboratories and other departments in KDHE do notreceive a copy of this form.

ATTACHMENT E

REMEDIAL IMPLEMENTATION SCHEDULE

PETROLEUM STORAGE TANK RELEASE TRUST FUND
SITE REMEDIATION PLAN IMPLEMENTATION SCHEDULE WORKSHEET

Site Name: _____ **KDHE Project Code:** _____

Consulting Firm: _____ **Consultant Contact:** _____

INSTRUCTIONS: This form must be completed by providing the information requested below; complete only the sections applicable to actual work that will be conducted. Do not include any attachments with the worksheet other than those described herein.

I. Site Information

A) Site Address:_____, _____, _____
(Street) **City** **County**

B) Legal Description:_____1/4_____1/4_____1/4 Section_____, Township_____South, Range_____East/West
(Circle One)

II. Equipment, Methods, and Staff

A) Drilling: List the drilling equipment to be used for SVE wells, BVS wells, and ASP wells under **column A** and equipment to be used for the groundwater recovery well(s) under **column B**. If only one type of drilling method is to be used, complete only **column A**.

		A	**B**
Drill Rig:	Brand/Model	_____	_____
	Torque Rating	_____	_____
Drill String:	Type (Augers, etc.)	_____	_____
	O.D./I.D.	_____	_____
Borehole size:		_____	_____
Sample Collection Equipment		_____	_____
Drilling Sample Frequency		_____	_____

B) Field Screening:
Field Screening Intervals _____
Device (Brand/Type/Specs) _____
Calib. Standard & Frequency _____

C) Well Development:
Method (bailer, pump, etc.) _____
Minimum well volume to be withdrawn (Drilling Scenario A) _____
Minimum well volume to be withdrawn (Drilling Scenario B) _____

D) Laboratory Analytical:
Soil Samples: Collection Equipment _____
Analytical Methods _____
Water Samples: Collection Equipment _____
Analytical Methods _____

E) Waste Handling Procedures: Briefly describe how soil and water waste generated during drilling, development and sampling activities will be handled, treated, and disposed:
Soil: _____
Water: _____

F) Decontamination: Briefly describe decontamination equipment, methods, and procedures to be employed.
_____
_____
_____
_____

G) Field Personnel:

List below the consultant's personnel and any subcontracting firms that will be involved in the field work. Indicate each individual's name, company, position title, and general duties. If resumes documenting education, experience, and safety training certification have not been provided with the original bid package for all those listed, submit the information with this worksheet. Attach additional sheets if necessary.

Name	Company	Position Title	Duties

III. Schedule of Activities

A. Date the contract with the owner or operator was signed._____

B. Public meeting/notification date _____ Time: _____
Location: _____
City Contact Person: _____ Phone: _____

C. Drilling to commence and conclude. Initiation date _____Completion date _____

D. Trenching and line installation. Initiation date _____Completion date _____

E. Equipment and structure installation schedule

Equipment Description	Initiation Date	Completion Date

F. Proposed start-up date: _____

G. Date system will be fully operational: _____

ATTACHMENT F

TIME SHEETS

KDHE TRUST FUND TIME SHEET LOG
FOR FIELD ACTIVITIES

SITE NAME: _____
SITE ADDRESS: _____
KDHE SITE CODE: _____
CONSULTANT: _____
PROJECT MANAGER: _____

NOTE: This form is to be maintained during all field activities. All Workers must sign, date and list the time they arrive and depart from the site. This must be done each time a worker arrives or departs the site. A COPY OF THIS FORM MUST ACCOMPANY ALL REQUESTS FOR REIMBURSEMENT.

DATE	PRINT WORKERS NAME	WORKER'S SIGNATURE	JOB TITLE	TIME STARTED	TIME FINISHED	TOTAL TIME FOR DAY

I certify that the names and signatures above are those of the actual people who worked on the referenced site during the dates and times stated.

Signed: _____
Consultant Project Manager

Date: _____

I certify that the information on this sheet is true and accurate to the best of my knowledge.

Signed: _____
Owner/Operator or Authorized Representative

Date: _____

KDHE TRUST FUND TIME SHEET LOG
FOR OFFICE ACTIVITIES

SITE NAME: _____
SITE ADDRESS: _____
KDHE SITE CODE: _____
CONSULTANT: _____
PROJECT MANAGER: _____

NOTE: This form is to be maintained during all office activities. All Workers must sign, date and list the time they work on the site project. A separate from must be maintained for each site project. A COPY OF THIS FORM MUST ACCOMPANY ALL REQUESTS FOR REIMBURSEMENT.

DATE	PRINT WORKERS NAME	WORKER'S SIGNATURE	JOB TITLE	TIME STARTED	TIME FINISHED	TOTAL TIME FOR DAY

I certify that the names and signatures above are those of the actual people who worked on the referenced site during the dates and times stated.

Signed: _____
Consultant Project Manager

Date: _____

ATTACHMENT G

OWNER/OPERATOR STANDARD CONTRACT

AGREEMENT

This **AGREEMENT** entered into between _____

_____(OWNER/OPERATOR) hereinafter referred to as the O/O;

and _____ (VENDOR),

hereinafter referred to as the Vendor.

WHEREAS, the _____ (O/O) is in need of Storage Tank consulting and testing services at

_____ and

WHEREAS, the O/O has requested bids from qualified firms to provide said services, and

WHEREAS, the Vendor is qualified to provide the required services.

1. The Vendor shall perform all services called for under the Request for Proposal in accordance with the specifications called for in said RFP.

2. The O/O shall compensate the Vendor for its services under the terms and conditions of said RFP in the amount of $_____, with payment to be made upon successful completion of the Project.

3. The provisions found in the Contractual Provisions attached hereto and executed by the parties to the AGREEMENT, are hereby incorporated in this AGREEMENT and made a part hereof.

IN WITNESS WHEREOF, we have hereunto set our hands below on the date specified.

_____ _____
Date Owner/Operator

_____ _____
Date Vendor

CONTRACTUAL PROVISIONS

Important: This form contains mandatory contract provisions and must be attached to or incorporated in all copies of any contractual agreement. If it is attached to the Vendor's standard contract form, then that form must be altered to contain the following:

"The provisions found in the Contractual Provisions, form # O/O 101, 7/92, which is attached hereto and executed by the parties to this agreement, are hereby incorporated in this contract and made a part hereof."

The parties agree that the following provisions are hereby incorporated into the contract to which it is attached and made a part thereof.

4. TERMS HEREIN CONTROLLING PROVISIONS

It is expressly agreed that the terms of each and every provision in this attachment shall prevail and control over the terms of any other conflicting provision in any other document relating to and a part of the contract in which this attachment is incorporated.

5. AGREEMENT WITH KANSAS LAW

All contractual agreements shall be subject to, governed by, and construed to according to the laws of the State of Kansas.

6. ANTI-DISCRIMINATION CLAUSE

The Vendor should comply with the Kansas Act Against Discrimination (K.S.A. 44-1001 et seq.) and the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 et seq.) and to not discriminate against any person who performs work hereunder, because of race, religion, color, sex, physical handicap unrelated to such person's ability to engage in this work, national origin or ancestry, or age.

7. ACCEPTANCE OF CONTRACT

This contract shall not be considered accepted, approved or otherwise effective until the required insurance certificates and applicable bonds are received by the O/O.

8. REPRESENTATIVE'S AUTHORITY TO CONTRACT

By signing this document, the representative of the Vendor hereby represents that he/she is duly authorized by the Vendor to execute this document on behalf of the Vendor and that the Vendor agrees to be bound by the provisions thereof.

9. RESPONSIBILITY FOR TAXES

The Owner/Operator will not be responsible for, nor indemnify a Vendor for, any federal, state or local taxes which may be imposed or levied upon the subject matter of this contract.

_____	_____
Date	Owner/Operator
_____	_____
Date	Vendor

ATTACHMENT H

DOMESTIC WELL CONTACT FORM

Attachment H

KDHE TRUST FUND DOMESTIC WELL CONTACT FORM

DATE: _____

SITE NAME: _____

KDHE SITE CODE: _____

CONSULTANT: _____

PROJECT MANAGER: _____

Form must be included in the first monitoring report
and faxed or e-mailed to Mr. Bill Reetz at:
breetz@kdhe.state.ks.us
Fax: (785) 296-6190

Well I.D.	Well Owner's Name	Well Owner's Address	Well Owner's Phone Number	Well Usage*	Treatment**	Direction from Plume

* Describe the well usage (lawn and garden watering, drinking water, other, etc.)

** Describe treatment if any on the well (reverse osmosis, carbon vessels,U.V., etc.)

Note: Form is to be filled out each time the contact information for a domestic well has changed. The form is to be forwarded to the KDHE project manager if changes are made.

ATTACHMENT I

OPERATING COST ADJUSTMENT FACTORS

Operating Cost Adjustment Factors

Year	*Percent*
2000	**2.0**
2001	**2.88**
2002	**4.4**
2003	**3.4**
2004	**3.9**
2005	**3.3**
2006	**4.2**

ATTACHMENT J

EQUIPMENT STANDARDS

Equipment Substitutions

Equipment substitutions will not be allowed during the bidding phase of the project and all bids will be based on the equipment specified in the approved RDP. All equipment substitution requests will be considered after the bid has been awarded and will be included with the Engineering Review. Substitute equipment must be approved in advance by the KDHE project manager in consultation with the design engineer and KDHE Technical Services Staff. KDHE intends that equipment substitutions under the definition of "same or equal" will be approved liberally in order that the implementation contractors may select and install equipment to meet their own convenience and preferences whenever possible. KDHE reserves the right to require installation of the equipment approved in the RDP design plan if an agreement cannot be reached with the KDHE review staff. It is the responsibility of the contractor to provide adequate documentation to confirm that the proposed equipment meets the following criteria.

1. Performance standards–The proposed equipment must meet or exceed the performance requirements as set forth by the approved design plans and specifications. For example, a substitute pump must be able to provide the minimum flow rate and pressure that is specified, and must be able to operate across the general range of flow rates and pressures that are required by the system. When other factors are important to the successful operation of the system (e.g temperature limitations, power supply requirements, duty cycle, or explosion proof design) the proposed equipment must also meet those operational requirements in order to be approved by the KDHE staff. KDHE reviewers generally will not refuse to approve equipment substitutions solely because of minor differences such as marginal efficiency variations or different materials of construction. All Explosion Proof (XP) equipment proposed in the approved RDP specifications will remain XP equipment. TEFC will not be an allowable substitution.

2. Operating principles–Substitutions will generally be approved for equipment which meets performance standards as described above even if the operating principle is different than the equipment specified in the approved RDP design plan. For example, positive displacement blowers may be approved in lieu of regenerative blowers. When the operating principals of the proposed substitution differs substantially from the design, to the extent that the operation and maintenance costs will be substantially affected (e.g. carbon treatment instead of air stripping), the KDHE Technical Services staff and the project manager will determine the effectiveness of the proposed equipment and the cost benefit to the project. It is the responsibility of the project engineer to provide adequate information as to the cost of equipment and cost of operation of the proposed technology so an informed decision can be made by KDHE review staff. Failure to provide adequate information on the proposed technology will result in denial of the proposed equipment.

3. As-built drawings and reports–Completed installations must be documented by as-built drawings and reports. All as-built drawings and reports will be dated, stamped and signed by the Project Engineer.

4. Bidders who propose the use of alternate technology should detail all additional operational or maintenance costs for the equipment during a two year period of operation.

Remote Telemetry

The minimum equipment design/specifications should be capable of allowing KDHE and/or SRP contractor personnel to:

1. Verify the equipment is operating properly by remote monitoring methods such as automatically contacting designated people, as specified by the project manager, in the event of an alarm status.

2. Use telemetry system generated reports as back-up data to support or verify the hour meter readings.

In order to meet these criteria, all electrically operated treatment systems should be provided with an integrated remote telemetry system which is appropriate to the complexity of the treatment system. The equipment must include at least one input channel for each item of equipment included in the interlock system, remote communication capability (minimum fax or e-mail), a programmable emergency contact list for alarm conditions, a battery backup, surge suppressor, and appropriate sensors or connections for the equipment and alarm conditions. The contractor will supply the KDHE staff with any necessary software or contact information to obtain access to the systems. The use of each input shall be clearly described in the Final Remedial Report. The project manager may also specify the telemetry equipment include additional input channels and sensors, additional capabilities such as data logging, remote access to current system status reports, etc.

ATTACHMENT K

QUARTERLY MONITORING REPORT

Petroleum Storage Tank Release Fund
Quarterly Monitoring Report

Facility Name:		**KDHE Project Code:**	
Facility Address:		**KDHE Project Mgr.:**	
Consultant:		**Consultant Project Mgr.:**	
Reporting Period:	**thru**	**Number of Days System Not Operating:**	
Days in Reporting Period			

Section 1 - Summary of Remedial Action

Groundwater:

	Pump & Treat:		Total Fluids Pumps (Electric)		Dual Phase Pumps (Electric)
			Total Fluids Pumps (Pneumatic)		Dual Phase Pumps (Pneumatic)
			With Off-gas Treatment		W/O Off-gas Treatment
	Air Sparge System:				

Recovery Trench(es): ____ YES ____ NO L_____ft. W_____ft. D_____ft.

No. of GW Recovery Wells: ____ No. of Sparge Wells: ____

Startup Dates:	GW Pump & Treat		Sparge		Off-gas Treatment
Water Treatment System:		Carbon		Air Stripper Tower	Tray Stripper
		Other (Specify):			
Public Well Treatment System:		Carbon		Air Stripper Tower	Tray Stripper
		Other (Specify):			
Disposition of Treated Water:		Sanitary Sewer		NPDES	Reinjection
		Other (Specify):			

Soil:

	Vapor Extraction System:		With Off-gas Treatment		W/O Off-gas Treatment:
No. of SVE Wells:		Startup Dates:	VES		Off-gas Treatment

Comments:

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Continued Section 1 - Summary of Remedial Action

Major Equipment on Site:							Warr. Exp.
Skimmer Pumps:	Brand		Type		Capacity		Date
Groundwater Pumps:	Brand		Type		Capacity		Date
Pre-Treatment/Filter:	Brand		Type				Date
Air Stripper:	Brand		Type		Capacity		Date
Enclosure Type:	Fence		Building		Skid		Other
Transfer Pumps:	Brand		Type		Capacity		Date
Air Compressor:	Brand		Type				Date
SVE Vacuum Pump:	Brand		Type		Capacity		Date
Sparge Blower Pump:	Brand		Type		Capacity		Date
Oil/H2O Separator:	Brand		Type		Capacity		Date
Knockout Tank:	Brand				Capacity		Date
Vapor Phase Carbon:	Brand		Type				Date
Water Phase Carbon:	Brand		Type				Date
PWS Treatment Equip.	Brand		Type		Capacity		Date
Telemetry:	Model		Type				Date
Off-gas Treatment Equip.:	Brand		Type		Capacity		Date

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 2 - Groundwater/Vapor Extraction/Injection Information

Design Flow Rate for Groundwater Extraction System:		GPM		
Actual Ave. Flow Rate During 1st. Month of Operation:		GPM		
Actual Average System Pumping Rate Since Start-up:		GPM		
Reporting Period Average Pumping Rate:		GPM		
Pump Operation:		Continual		Cycling
Design Air Flow Rate for Vapor Extraction System:		CFM		
Actual Ave. Flow Rate During 1st. Month of Operation:		CFM		
Actual Average System Flow Rate Since Start-up:		CFM		
Reporting Period Average Flow Rate:		CFM		
Blower Operation:		Continual		Cycling
Design Air Flow Rate for Air Sparge System:		CFM		
Actual Ave. Flow Rate During 1st. Month of Operation:		CFM		
Actual Average System Flow Rate Since Start-up:		CFM		
Reporting Period Average Flow Rate:		CFM		
Blower Operation:		Continual		Cycling

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 3 - System Down Time Summary (Current Reporting Period Only)

Dates		Explanation for Down Time
From	To	(Indicate Corrective Measures Taken)

Section 4 - History of Major Maintenance/Repair Activities Since Start-up

Date of Maintenance/Repair	Description of Work Performed	Performed by:

Section 5 - History of Air Stripper/Carbon Packing/Tray Stripper Changes Since Start-up

Date of Changes	Description of Work Performed	Performed by:

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 6 - Well Inventory Table (Onsite and Offsite Wells)

Wells					Wells				
Well No.	Date Install	Dia. (in.)	Screened	Interval (ft.)	Well No.	Date Install	Dia. (in.)	Screened	Interval (ft.)

Wells					Wells				
Well No.	Date Install	Dia. (in.)	Screened	Interval (ft.)	Well No.	Date Install	Dia. (in.)	Screened	Interval (ft.)

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 7 - Groundwater Elevations

Date: _____

Well I.D.	KDHE Well No.	Casing Elevation	Water Level	Water Elevation	Free Phase Product Thickness	Free Phase Product Elevation

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 8 - Free Product Information

Is free product present at the site? _____ YES _____ NO If yes, when was free product discovered? _____

Recovery Method	This Period	Year to Date	Inception to Date
Passive	Gals.	Gals.	Gals.
Bailing	Gals.	Gals.	Gals.
Automated	Gals.	Gals.	Gals.
Other (Dewatering, excavation, etc.)	Gals.	Gals.	Gals.
Total free product recovered:	Gals.	Gals.	Gals.

Indicate significant recovery events: _____

_____

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Continued Section 8 - Free Product Information

Free Product Gauged (FEET)

Year											
	Well #										
	Dia. (in.)										
Jan.											
Feb.											
March											
April											
May											
June											
July											
August											
September											
October											
November											
December											
	Gals.										
										Sum Gals.	

Year											
	Well #										
	Dia. (in.)										
Jan.											
Feb.											
March											
April											
May											
June											
July											
August											
September											
October											
November											
December											
	Gals										
										Sum Gals.	

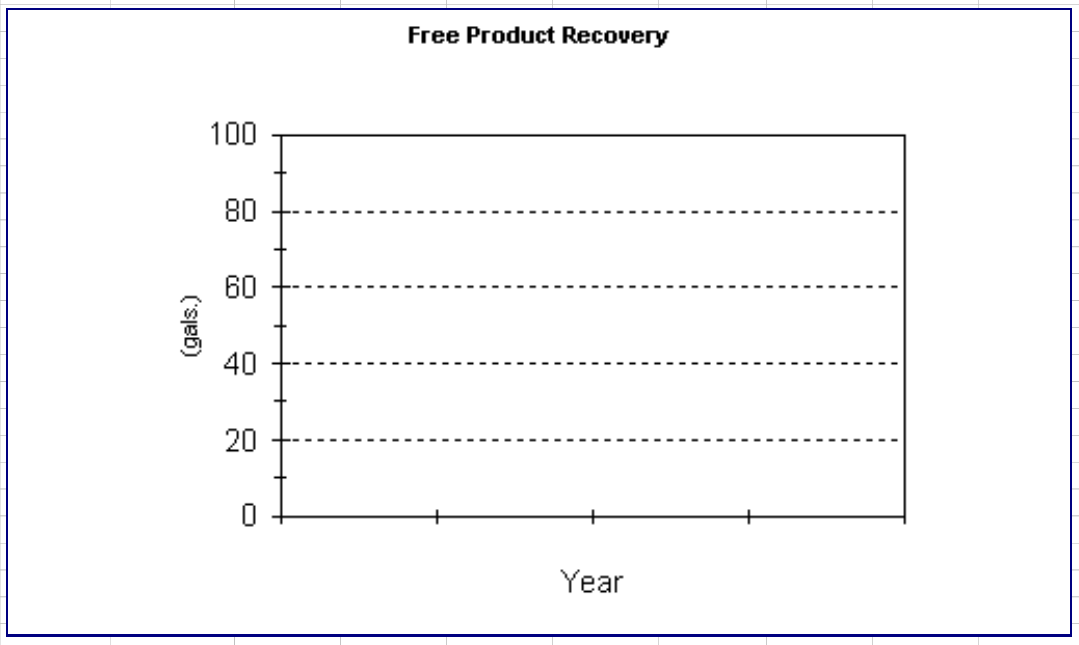
Quarterly Monitoring Report

Facility Name: **KDHE Project Code:**

Continued Section 8 - Free Product Information

Summary of Free Product Recovery (gals.) - Cummulative by Year

Year					Total
Vol. Recovered (gals.)					



Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 9 - Groundwater Operational Parameters

Date	Meter Reading (Previous)	Meter Reading (Current)	Total Flow (Gallons)	Days in Period	Gallons per Minute	Total Flow (to Date)

Quarterly Monitoring Report

Facility Name: ______________________ **KDHE Project Code:** ______________________

Section 10 - Monitoring & Recovery Well Analytical

Date: ____________ (Use ppb units)

	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-DCA	MtBE	Naphthalene	Lead (Filt.)	Lead (Unfilt.)	Volume Purged (gallons)
Method										
Det. Level										
Well I.D.										

Quarterly Monitoring Report

Facility Name: ____________________ **KDHE Project Code:** ____________________

Section 11 - Pump and Treat Influent (Before Treatment)

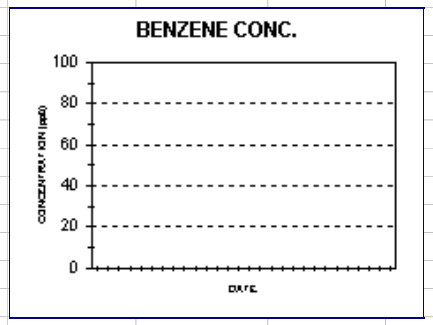
Sample Location: __________ (Use ppb units)

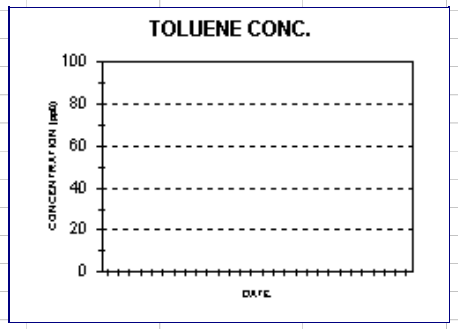
	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-DCA	MtBE	Naphthalene	Lead (Filt.)	Lead (Unfilt.)
Method									
Det. Level									
Date									

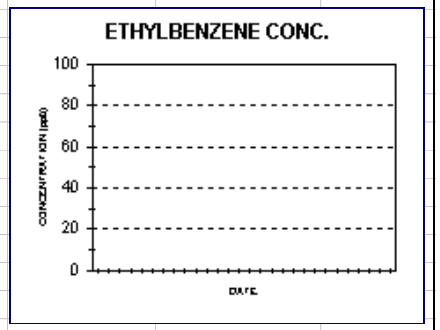
Quarterly Monitoring Report

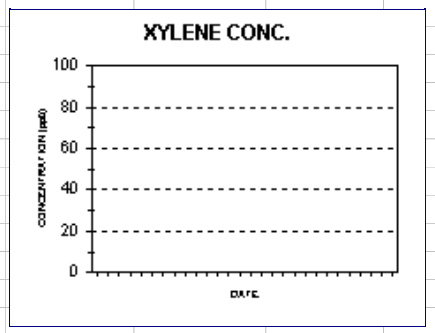
Facility Name: _____ **KDHE Project Code:** _____

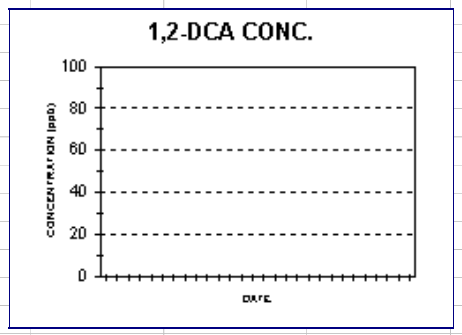
Continued Section 11 - Pump and Treat Influent (Before Treatment)

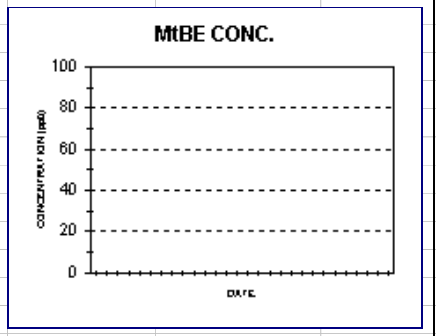


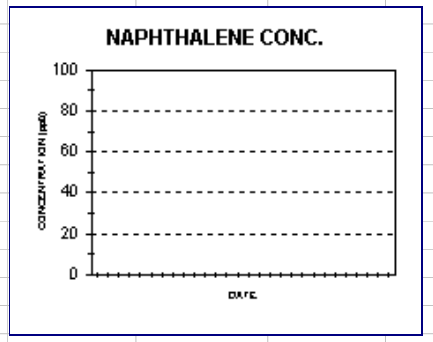


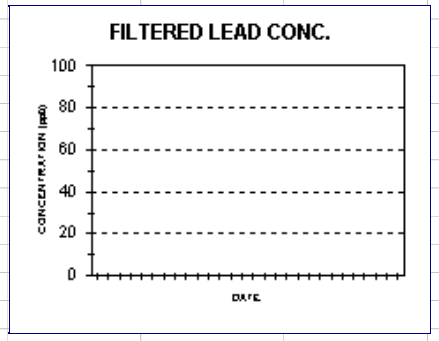


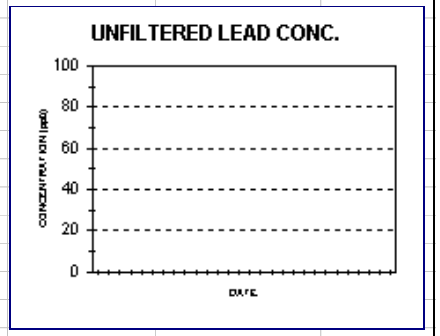












Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 12 - Pump and Treat Effluent (After Treatment)

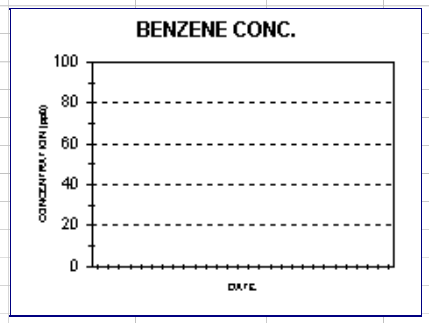
Sample Location: _____ (Use ppb units)

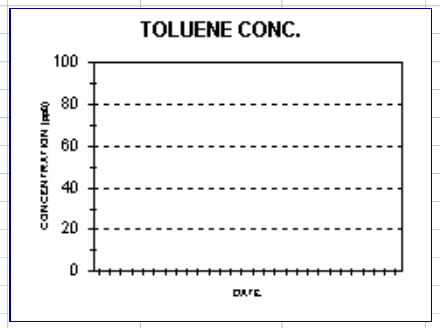
	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-DCA	MtBE	Naphthalene	Lead (Filt.)	Lead (Unfilt.)
Method									
Det. Level									
Date									

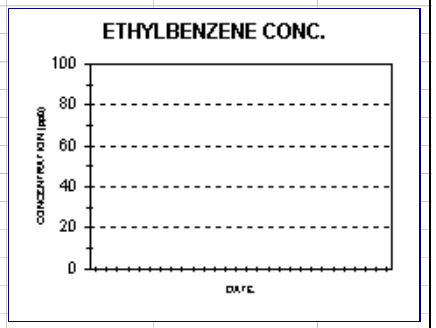
Quarterly Monitoring Report

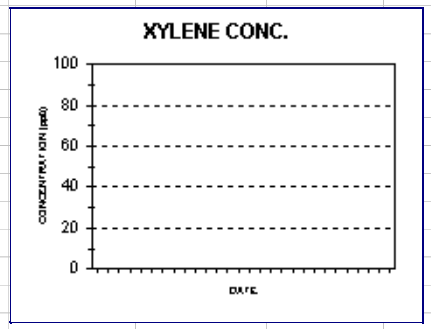
Facility Name: _____ **KDHE Project Code:** _____

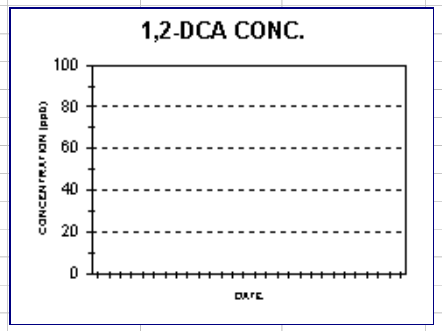
Continued Section 12 - Pump and Treat Effluent (After Treatment)

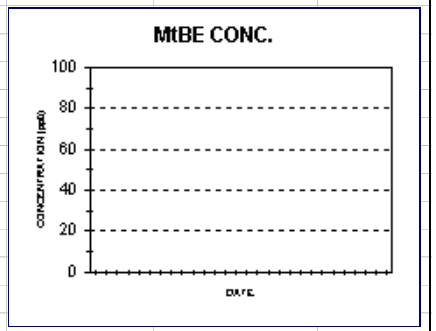


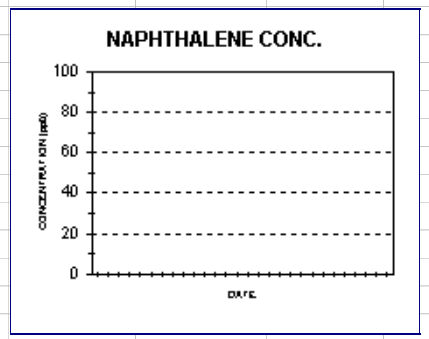


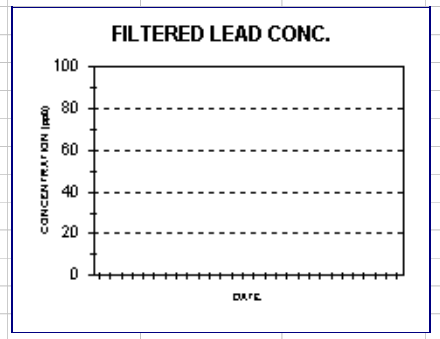


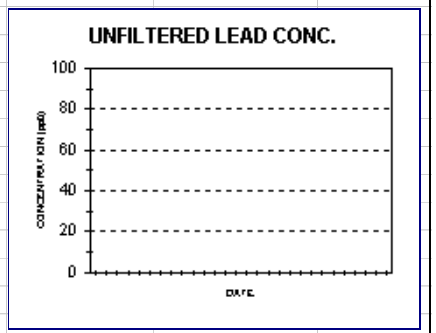












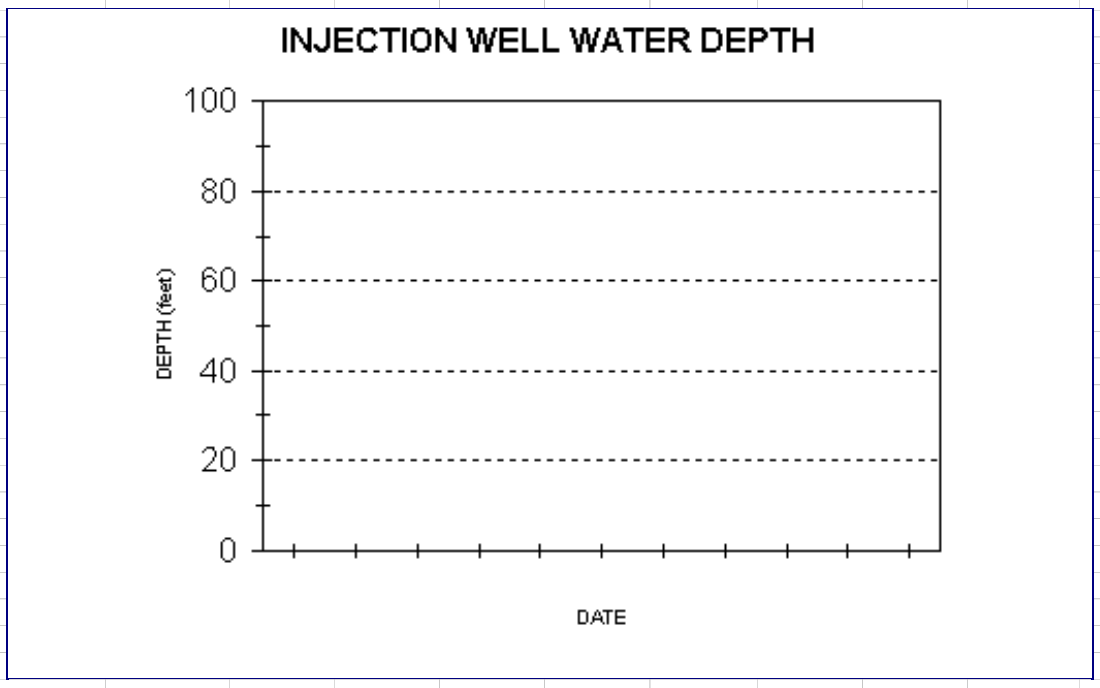
Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 13 - Injection Well Information

Record of water level (feet) in injection wells from TOC:

Well I.D.	Date										



Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 14 - Groundwater Trends

Indicate below any patterns/trends in groundwater fluctuations and discuss hydrological features that may contribute to such fluctuations (i.e., irrigation ditches, ponds, wells, etc.)

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

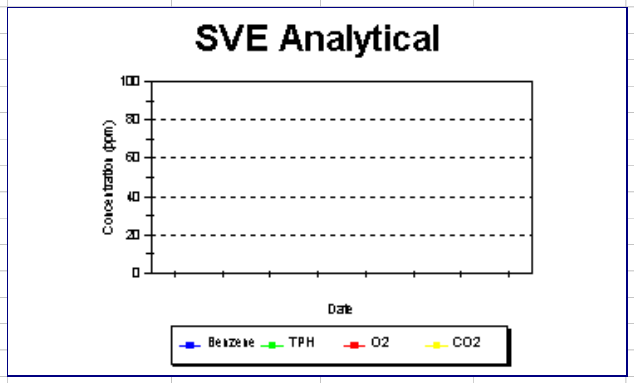
Section 15 - SVE Unit Field and Laboratory Analytical Results

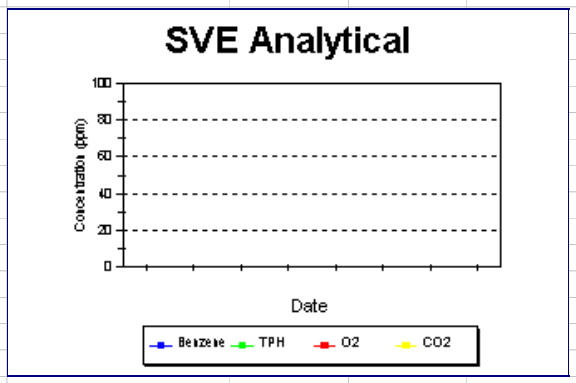
SVE Unit: _____ (Report in ppm)

		Benzene	Toluene	Ethylbenzene	Xylenes	TPH	O2 Readings (mg/m^3)	CO2 Readings (mg/l)	PID Readings (ppm)
	Method:								
	Detection Limit:								
Date									

SVE Unit : _____ (Report in ppm)

		Benzene	Toluene	Ethylbenzene	Xylenes	TPH	O2 Readings (mg/m^3)	CO2 Readings (mg/l)	PID Readings (ppm)
	Method:								
	Detection Limit:								
Date									





Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

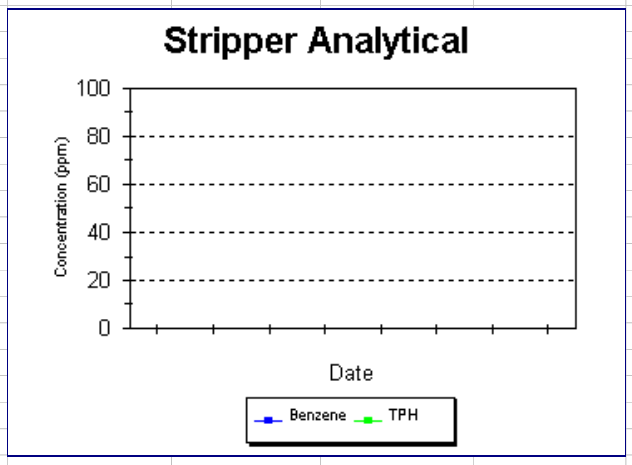
Section 16 - Stripper Unit Field and Laboratory Analytical Results

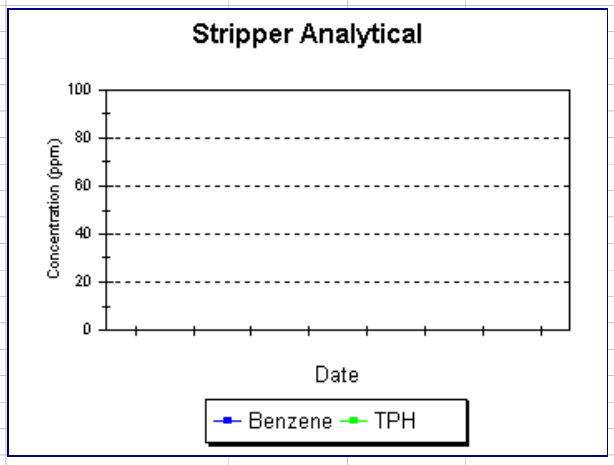
Stripper Unit: (Report in ppm)

	Benzene	Toluene	Ethylbenzene	Xylenes	TPH			
Method:								
Detection Limit:								
Date								

Stripper Unit : (Report in ppm)

	Benzene	Toluene	Ethylbenzene	Xylenes	TPH			
Method:								
Detection Limit:								
Date								





Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 17 - SVE Well Field and Laboratory Analytical Results

SVE Well: _____ (Report in ppm)

		Benzene	Toluene	Ethylbenzene	Xylenes	TPH	O2 Readings (mg/m^3)	CO2 Readings (mg/l)	PID Readings (ppm)
	Method:								
	Detection Limit:								
Date									

SVE Well: _____ (Report in ppm)

		Benzene	Toluene	Ethylbenzene	Xylenes	TPH	O2 Readings (mg/m^3)	CO2 Readings (mg/l)	PID Readings (ppm)
	Method:								
	Detection Limit:								
Date									

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 18 - Air Sparge (A/S) Wells/System Operation

A/S Well: _____

				Operation Time	
Parameter:	Pressure	Flow Rate	Dilution Air	Continuous	Cycling
Units:	(psi)	(scfm)	(%)	(Hours)	(Hours)
Date					

A/S Well: _____

				Operation Time	
Parameter:	Pressure	Flow Rate	Dilution Air	Continuous	Cycling
Units:	(psi)	(scfm)	(%)	(Hours)	(Hours)
Date					

Complete A/S System (If applicable)

				Operation Time	
Parameter:	Pressure	Flow Rate	Dilution Air	Continuous	Cycling
Units:	(psi)	(scfm)	(%)	(Hours)	(Hours)
Date					

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 19 - SVE Well/Unit Vacuum Extraction Flow Rates & Totalizer / Analyzer Readings

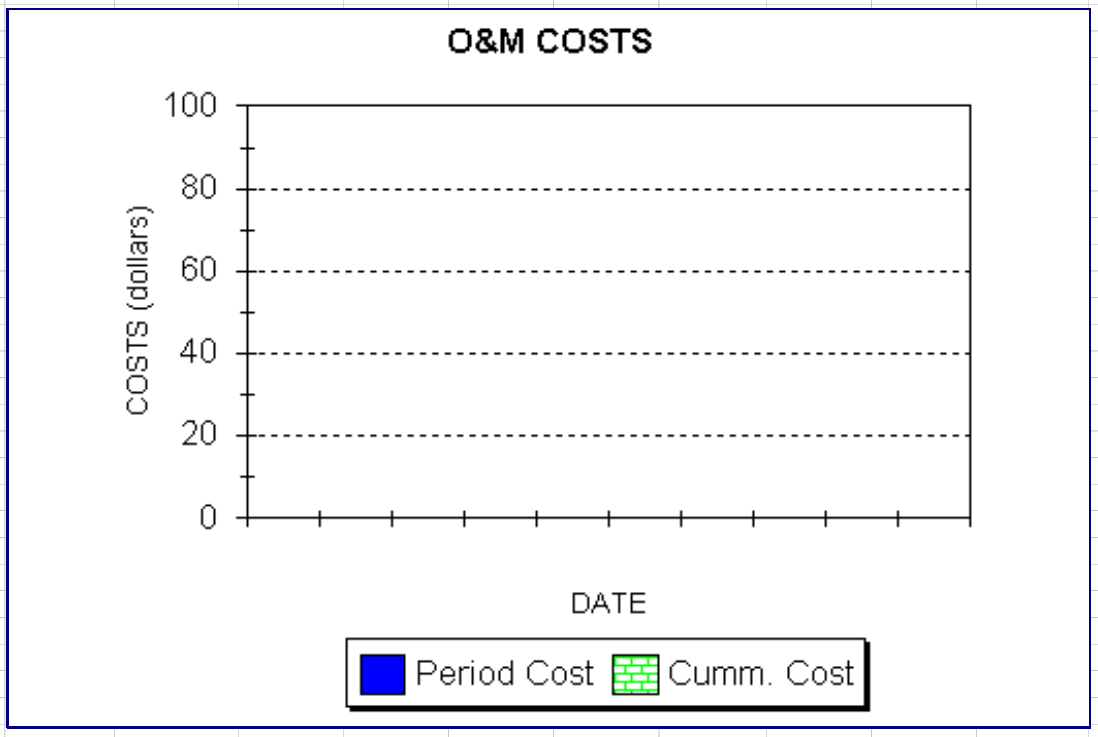
Date								
Well # / Unit #								
Before Filter ("H2O)								
After Filter ("H2O)								
K.O. Tank ("H2O)								
K.O. Totalizer (gal.)								
Flow Analyzer (scfm)								
Dilution Air (%)								

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 20 - Operation & Maintenance Costs vs. Time

	Date									
Period Cost										
Cumm. Cost										



Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 21 - Permits

Permit	Permit #	Original Application Date	Renewal Date
KDOT Right of Way			
NPDES (BOW)			
Groundwater Withdrawal (DWR)			
Class V Injection Well (BOW)			
Construction			
Electrical			
Easements			
Other			

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 22 - System Operation Time (hours)

Date	SVE #A	SVE #B	SVE #B		A/S #A	A/S #B	A/S #C		Off-Gas Unit
Total Oper. Hrs. for Rept. Period									
Total Oper. Hours for Quarter									
Total Oper. Hours for Year									

Quarterly Monitoring Report

Facility Name: _____ **KDHE Project Code:** _____

Section 23 - Off-Gas Treatment Operation

				Dilution Valve Position	
	Inlet Temp.	Discharge Temp.	Flow Rate	Manual	Automatic
	(F)	(F)	(scfm)	(%)	(%)
Date					

	Sampling			
	Inlet		Discharge	
	PID/HNU	Analytical	PID/HNU	Analytical
	(ppmv)	(ppmv)	(ppmv)	(ppmv)
Date				

Auxiliary Fuel Supply: (Circle type)

Natural Gas Propane

ATTACHMENT L

EQUIPMENT BUILDING LOG-IN SHEET

ATTACHMENT L

Site Address:
Project Name:
Project Code:

SYSTEM LOG SHEET

ANYONE ENTERING THIS BUILDING FOR ANY REASON MUST MAKE A LOG ENTRY

*(If you do not know where the hour meters are located or how to read them, you may leave this space blank.)

Printed Name Company/Agency	Date	Status ON/OFF	*Hour Meter Reading for Each Piece of Equipment	Reason for Visit	Comments
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		
			1.		
			2.		
			3.		
			4.		

KDHE BER / REV. O/ 12-95 / D. Joslyn

ATTACHMENT M

OPERATIONAL STATUS SHEET

REMEDIAL SYSTEM OPERATION STATUS
Petroleum Storage Tank Release Trust Fund

Date _____

To: Kansas Department of Health and Environment FAX: (785) 296-6190

Attention: _____ Phone: _____

From: _____ Phone: _____

KDHE Project Name:_____ KDHE Project Code:_____

SYSTEM STATUS:	**Operational** **YES** (Date)	**NO** (Date)	Problem/Solution
Groundwater Treatment System			_____ _____ _____ _____ _____
Soil Vapor Extraction System			_____ _____ _____ _____ _____
Air Sparging System			_____ _____ _____ _____ _____
Off-Gas Treatment System			_____ _____ _____ _____ _____
Product Recovery System			_____ _____ _____ _____ _____

Date and Time Implementation Company will be on site to determine problem:_____

Date System expected to be operational: _____

ATTACHMENT N

MONITORING/OMM EVENT SUMMARY SHEET

Kansas Petroleum Storage Tank Release Trust Fund
Monitoring/OMM Event Summary

Site Name:_____ Vendor:_____
Site Code:_____ Sampling Tech:_____
Date Sampled:_____ Event #:_____
Event Frequency: Annual_____ Semi-Annual_____ Quarterly_____ Monthly_____

Well #	Sampled (x)	Not Sampled		
		FP	Dry	Other (Explain)
Total No.				

Signed:_____

This form is to be completed in the field and MUST accompany ALL invoices for Monitoring & OMM work.

ATTACHMENT O

FIELD WORK NOTIFICATION FORM

SRP FIELD WORK NOTIFICATION FORM - Mail, fax, or e-mail to the KDHE Project Manager and the KDHE District Office seven days prior to field work. District number follows the "U" or "A" in the project code. Circle the district office.

KDHE / BER / STORAGE TANK SECTION
1000 SW Jackson, Suite 410
Topeka, KS 66612
FAX: (785) 296-6190

KDHE SWDO #1
Attn.: Doug Doubek
302 W. McArtor Road
Dodge City, KS 67801
FAX: (620) 225-3731

KDHE SCDO #2
Attn.: Kyle Parker
130 South Market, 6th Floor
Wichita, KS 67202
FAX: (316) 337-6023

KDHE SEDO #3
Attn.: Bill Thornton
1500 West 7th
Chanute, KS 66720
FAX: (620) 431-1211

KDHE NEDO #4
Attn.: Dan Kellerman
800 West 24th Street
Lawrence, KS 66046
FAX: (785) 842-3537

KDHE NCDO #5
Attn.: Scott Lang
2501 Market Place, Suite D&E
Salina, KS 67401
FAX: (785) 827-1544

KDHE NWDO #6
Attn.: Bill Heimann
2301 E. 13th
Hays, KS 67601
FAX: (785) 625-4005

KDHE and KDHE DISTRICT OFFICE NOTIFICATION OF PLANNED FIELD ACTIVITIES

DATE: _____

KDHE Project Manager: _____

Site Name: _____ Project Code: _____

Address: _____ City: _____ County: _____

Consultant: _____
(company name, personnel expected)

PLANNED SRP ACTIVITIES (circle all that apply):

Drilling/Well Installation Trenching Excavation Quarterly OM&M

Planned Date(s) of Activity(ies): _____

COMMENTS:
_____
_____
_____
_____
_____
_____

ATTACHMENT P

CERTIFICATION OF COMPLETION

ATTACHMENT P

The following Certification of Completion (COC) is provided to satisfy the requirements outlined under heading 4.5.6 Report Format; Section 1.8 of the SRP REV. 6, 3/02 document.

Owner and/or Operator Certification

I, _____ hereby state and certify that, to the best of my knowledge and belief, the remedial design system has been implemented in accordance with the KDHE approved remedial design plan (RDP) and the remedial system installation is satisfactory to me.

_____ _____
(Signature) (Date)

_____ _____
(Printed Name) (Title)

Professional Engineer Certification

I certify that I have personally examined and am familiar with the engineering information presented in the KDHE approved RDP, equipment substitutions listed in Exhibit 2 Project Bid Proposal Sheets of the SRP document, project specification testing requirements, any and all modifications made during installation upon completion of a thorough inspection of the system. Based on my inquiry of those individual(s) responsible for the remedial system installation or those persons directly responsible for gathering installation verification testing results (e.g. soil compaction, air tightness piping, pipe survey, other testing requirements), the information submitted is to the best of my knowledge and belief, true, accurate, and complete. Therefore, I am satisfied that the installation of the remedial system at , Kansas has been performed in accordance with the KDHE approved RDP or have provided a complete list of discrepancies from the approved RDP implemented under my oversight. Attached are copies of remedial system verification testing results required by the approved RDP specifications.

_____ _____
(Signature) (Date)

_____
(Printed Name)

_____
(Kansas Professional Engineer License No.)

_____

_____
(Business Address) (Seal)

_____
(Telephone Number)

ATTACHMENT Q

OFF-SITE ACCESS PAYMENT SCHEDULE

OFF-SITE ACCESS AGREEMENT
AND PAYMENT SCHEDULE

KDHE PROJECT NAME: _____

KDHE PROJECT CODE: _____

OWNER(S) OF PROPERTY: _____

ADDRESS OF PROPERTY: _____

The owner(s) of the above described property grant to _____ (owner/operator of KDHE project), the right and privilege to enter on the above described property for the purpose of conducting remedial activities which will include the following:

____	drilling and plugging of soil borings/groundwater survey probes;	___ X $	50.00	= $_____
____	drilling and construction of groundwater monitoring wells;	___ X $	250.00	= $_____
____	drilling and construction of groundwater recovery wells, and any necessary piping;	___ X $	250.00	= $_____
____	drilling and construction of groundwater recovery wells, and any necessary piping;	___ X $	500.00	= $_____
____	drilling and construction of groundwater reinjection wells, and any necessary piping;	___ X $	500.00	= $_____
____	installation of any necessary piping.	___ X $	100.00	= $_____

This property access agreement shall terminate upon the accomplishment of the above stated purpose(s).

All well completions will meet or exceed the KDHE Standard Monitoring Well Design; any changes to this design will require obtaining a variance from the appropriate local and state regulatory authority. Soil borings not completed as monitoring wells will be plugged in accordance with all state regulations and guidelines as outlined in K.A.R. 28-30-7(d) Article 30-Water Well Contractor's License: "Water Well Construction and Abandonment". A compensation amount for a total of $_____ will be payable to the owner upon completion of the above stated activities and after the proper invoices have been submitted by the vendor. This amount will be eligible for reimbursement from the Petroleum Storage Tank Release Trust Fund (Trust Fund) administered by the KDHE. This compensation is being provided to alleviate any inconvenience to the property owner and to secure property access for the collection of groundwater and/or air samples from the wells for the duration of the project. Subsequent to all remedial activities, the property will be restored, as nearly as reasonably possible, to the condition it was in at the time this consent agreement was executed.

Upon completion of the project, a compensation amount of $100.00 per well for a total of $_____ will be payable to the owner to allow property access to properly abandon all wells installed during remedial activities. All wells will be plugged and abandoned in accordance with K.A.R. 28-30-7(d).

Prior to termination of this property access agreement, all materials and equipment shall be removed from the property and the property will be restored, as nearly as reasonably possible, to the condition it was in at the time this property access agreement was executed. Piping/lines will either be properly plugged and left in place, or will be removed from the property.

_____

Property Owner Signature Date

WITNESSES:

_____

Date

_____

Date

EXHIBIT 1

SITE SPECIFIC INFORMATION

EXHIBIT 2

PROJECT BID PROPOSAL SHEETS